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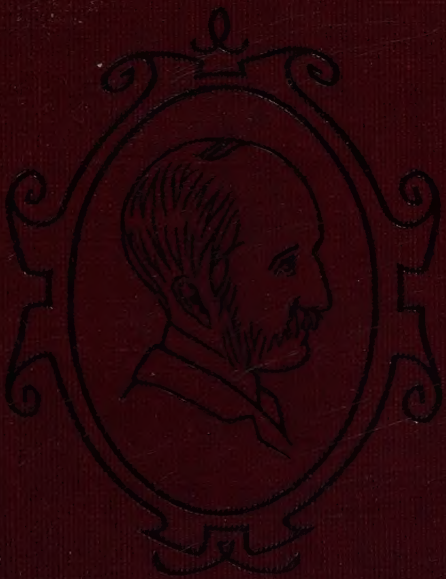

WARD LIVINGSTON TRUDEAU

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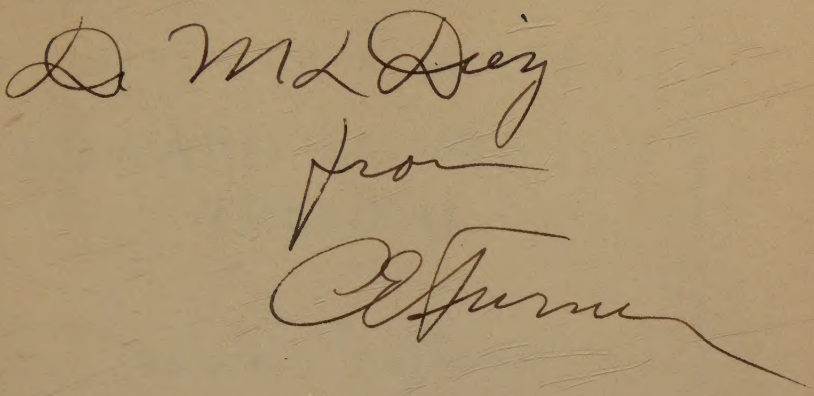

HEALTH HEROES

EDWARD LIVINGSTON TRUDEAU

BY

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PREFACE

THE first two books in this series, *Louis Pasteur* and *Edward Jenner,* have met with so kindly a reception that the authors venture to set forth herewith the life of the beloved physician, Dr. Edward Livingston Trudeau. A knowledge of his life and accomplishment brings with it an inspiration for service, an insight into the disease which he mastered, and an appreciation of his contribution to humanity in vanquishing the shadow of hopelessness which men had come to associate with tuberculosis.

Like its predecessors in the Health Hero Series, this book has been specially prepared for boys and girls in their early teens. It will be useful in the public school either as supplementary reading or as reference and source material. In the junior and senior high school the courses of *Hygiene, General Science, Home Economics, Home Nursing, Social Science,* and *Civics* all contribute to *Health Education.* Teachers of these subjects will find the

life of Dr. Trudeau an interesting source of information concerning the nature and prevention of tuberculosis, the economic importance of the disease, the importance of social responsibility for this type of illness, the nature and value of nursing care, the importance of food and clothing in health and disease, and the services of medical science to the public welfare. In assemblies, in English classes, or in the school paper it may be interesting to present the history of tuberculosis, the contributions of Trudeau in saving human life, or lessons in health and happiness to be gathered from a study of his career. Whether read at school or at home, the book should provide the young reader with a broader basis for appreciation of the principles of healthful living. To render the presentation more useful, the account of Trudeau's own exploits has been supplemented in the Appendix by a brief résumé of the attitude toward tuberculosis of the world in general and of the medical profession in particular at various periods of civilization. This " Story of Tuberculosis " may be read to advantage by all pupils.

The authors wish to acknowledge with thanks the help which has been received from many friends, and particularly the assistance of Dr. Francis Trudeau and Dr. Edward R. Baldwin of

the Trudeau Sanatorium. Not only were Dr. Baldwin and Dr. Trudeau kind enough to assist us in the accumulation of pictures, but they also read the manuscript after it was completed.

G. T. H.
C. E. T.

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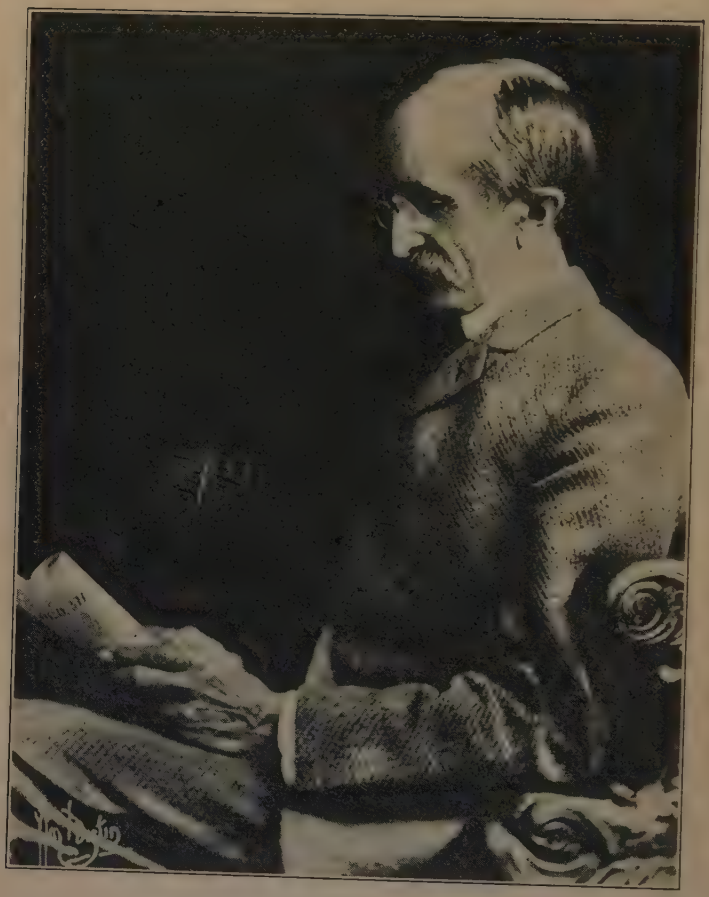


EDWARD LIVINGSTON TRUDEAU

HEALTH HEROES

EDWARD LIVINGSTON TRUDEAU

*CHAPTER I**

BOYHOOD

THE year 1848 was one of revolution and adventure. In that year many of the peoples of Europe rose against their rulers in a demand for more democratic government, and when those uprisings failed, immigrants came pouring into New York. In that year, as a result of the failure of the potato crop in Ireland in 1846 and 1847, thousands of Irishmen came to America to seek their fortunes in the new world. In that year American adventurers went rushing to the newly discovered gold fields of California.

The period was a thrilling and crucial one in American history. The telegraph, the reaper, and the sewing machine had just been invented. Poets and writers — Longfellow, Emerson, Bry-

* The Metropolitan Life Insurance Company has issued for use in the schools a brief story of Trudeau's life by the authors of this book. The company has also prepared a film strip dealing with this subject. Both booklet and film strip are obtainable without charge.

ant, Whittier, and Washington Irving — were making American literature. Slavery was on the point of being wholly abandoned in the Northern States. The golden voices of America's greatest orators — Daniel Webster, Henry Clay, and John C. Calhoun — held vast crowds under their spell. With the annexation of Texas, Oregon, California, and New Mexico, the boundaries of the United States had reached practically their present limits.

In this America, on October 5 of the important year 1848, Edward Livingston Trudeau was born in the city of New York. Born in a year of revolution and adventure, he was to revolutionize the treatment of one phase of human suffering by a great adventure of his own.

The profession of Edward's family, on both his mother's and father's side, was that of medicine. His father, Dr. James Trudeau, was a descendant of a French Huguenot family which had left France for Canada and had later drifted down the Mississippi to settle in New Orleans. His mother was the daughter of Dr. François Éloi Berger, a French physician practising in New York. For as far back as they could be traced, Dr. Berger's ancestors, also, had been physicians.

Edward, who was the youngest of three children, never knew his father. Shortly after his birth

his father and mother separated, but in later years Trudeau used to say that he had inherited from his father not only a leaning toward medicine but also a passion for wild nature and for hunting.

Dr. James Trudeau loved adventure and outdoor life. He was a friend of John J. Audubon and often went with that great naturalist on his trips to study and paint birds and animals. In 1841 he and Audubon went with Frémont on the expedition to explore the land beyond the Missouri River and the Rocky Mountains. That was the time when the claim of the United States to the Oregon Territory was being strengthened by occupation. Frémont's job was to survey the pass through the Rocky Mountains by which the covered wagons of the American settlers were to travel.

On this trip Edward's father had a remarkable adventure. Years before, his grandfather, Zénon Trudeau, had been governor of "Les Illinois." Once, when sailing down the Mississippi in his barge, the governor had rescued a chief of the Osage Indians who had been wounded in a fight on the banks. He took the chief to his plantation and cared for him until he recovered. Then he helped the Indian back to his wigwam and his friends.

On leaving, this chief had said to Governor Trudeau, " Indian never forgets."

Accordingly, when the Osage Indians heard that a Trudeau was with the Frémont expedition, they sent a delegation of their young bloods to invite this grandson of their ancestor's benefactor to visit their settlement. Dr. Trudeau stayed with the Osage Indians for two years. He learned their customs and their language and how to ride and carry arms in the fashion of the tribe. The squaws made him an Indian costume, and in this he was painted by Audubon.

Later, after his separation from his wife, Dr. James Trudeau returned to his old home in New Orleans and fought on the Southern side in the Civil War.

At the age of three, Edward Trudeau went with his mother, his older brother, and his grandparents to live in France. They arrived in Paris in 1851 and stayed there until after the Civil War in the United States. They lived on the second floor of a house on a little street just off the Champs Elysées, one of the most famous thoroughfares in Paris. The first floor was always hired by the French government as a residence for one of the generals of the army.

Shortly after the Trudeaus came to Paris, the

Trudeau's Father, Dr. James Trudeau, in Osage Indian Costume, as Painted by Audubon

second French Empire was proclaimed, with Napoleon III, a nephew of the great Napoleon, as ruler. His reign was full of magnificence. From the windows overlooking the courtyard at the back of their apartment, the Trudeau boys, Edward and Frank, had great fun watching the horses and orderlies of the general who occupied the ground floor. When a military review or public fête took place, the courtyard was crowded with cavalrymen in brilliant uniforms. The general's horse, covered with gold trappings, was led into the middle of the court, and then the general himself appeared, shining with gold lace and decorations. When he mounted his prancing horse, the whole cavalcade clattered out of the courtyard into the street, to the intense delight of the watching boys.

Edward made friends with General Bazaine, who lived in the house for many years. This general seemed in the boy's admiring eyes to be magnificent and unconquerable. And yet it was General Bazaine who, in the War of 1870 between France and Prussia, surrendered the French army to the Germans and left Paris at the mercy of the invaders.

Edward's grandfather, Dr. Berger, was decorated with the Cross of the Legion of Honor by Emperor Napoleon, but for what service the little

boy could never discover. Whenever he asked his grandfather why he always wore that little red ribbon in his buttonhole, the old gentlemen smiled and said, " To make little boys ask questions."

Edward and his older brother, Frank, went to school at the Lycée Bonaparte. Frank had always been delicate, and because of his lack of strength the French boys thought that they could bully him. But they reckoned without Edward, who valiantly fought his brother's battles.

When Edward was twelve years old, the Civil War broke out in the United States. Although the father of the Trudeau boys was a Southerner and fought as a Confederate officer in the war, the boys themselves were on the side of the North. All their American playmates in Paris were Northerners too. The only occasions on which they met the " enemy " were when they sailed their toy boats in the fountains of the Tuileries Gardens. There the toy fleet of the Northerners engaged the much smaller fleet of the few American Southern boys then in Paris.

Edward dressed his ship for these mimic naval battles with great care. His boat carried a large cannon which fired real powder, although it seldom went off at the right time. In addition he invented a weapon which he thought would do great damage

to the enemy. At the tip end of the bowsprit he fastened a large steel ink eraser which he had carefully sharpened. This weapon cut and tore the rigging of enemy craft when his vessel encountered them. But more often than not his little boat, which was hard to steer, damaged friendly ships and brought down upon Edward the wrath of their owners.

Once Edward had a genuine skirmish with no less a person than one of the ambassadors whom the Southern States had sent to France to ask recognition for their government. His name was Mr. Slidell. The Northern boys soon discovered that this gentleman walked to his home every evening through the Champs Elysées. To show their disapproval of his mission, they lined up each time he passed with their toy boats under their arms and waved at him the Stars and Stripes. One day, after Mr. Slidell had passed with a scowl at the giggling boys, Edward pulled out his trusty sling-shot and sent a piece of hard putty after the retreating back. To his horror he actually hit the old gentleman. Edward hid the sling-shot in his pocket and strolled off with as unconcerned an air as possible.

Suddenly the other boys, who had not noticed the incident, shouted to him, " Run! " At that instant

a hand seized Edward by the coat collar and a large umbrella came down on his head and shoulders with a loud whack. Edward wiggled out of his coat and ran, looking back as he did so to see the purple-faced old gentleman beating his coat with the umbrella. With fearsome thoughts of arrest and a dungeon cell, he ran home and plucked up enough courage to tell his grandfather of the enormity of his offense.

His grandfather's mouth twitched with laughter, but he explained to Edward that what he had done was wrong. So strong were the feelings between North and South, however, that, instead of being punished for his wrongdoing, the boy was taken on the following evening to a reception at the American Embassy, where the Ambassador's daughter took him by the hand and said: "So you are the young man who shot at Mr. Slidell on neutral territory. Come and let me introduce you to my father!" The men guests shook his hand and patted him on the back and said, "Bully for you!" and the ladies smiled at him approvingly. Never again did young Edward see or hear anything further of his coat or of Mr. Slidell.

At the end of the Civil War, the Trudeau boys returned to New York with their grandparents. Edward spoke only broken English, and he won-

dered why his girl cousins in New York laughed when he said, " Ze English language is a very hard language to prononciate."

America was a revelation to the seventeen-year-old boy. He had lived all his remembered life in a society hedged about with strict rules. In France it was an unheard-of thing for a young man in good society to mingle freely with girls of his own age. He had never before spoken to a young girl except in the presence of an older person. Now he was free to laugh and talk and play with his girl cousins and their friends.

He had many " joyous play days." In Nyack, where he and his family spent their summers, he had a horse and wagon and a sailboat, both of which added to the pleasures of the young people with whom he associated. It was on a trip to Nyack that he met his future wife. His cousin had often described to him in glowing terms her dearest friend, Lottie Beare, and he was eager to meet her.

When he was first introduced to the young lady, on a boat ride from New York to Nyack, he thought her cold and dignified. But he was polite, and on the long walk up the hill from the boat to his cousin's house he carried Miss Beare's traveling bag. He said later: " It was a hot afternoon and

the hill was long and steep, the bag large and heavy; and Miss Beare did not seem to me very gracious. When we reached the house, she at once went to her room, and my cousin rushed back to me and said, 'Well, what do you think of Lottie Beare?' I answered, 'I don't know much about Miss Beare, but I can say positively that she has an enormously heavy traveling bag.'

"Nevertheless it was the tall, slender girl in black, with the heavy traveling bag, who soon inspired me with a love which made me in time give up all the wild mode of life into which I was fast slipping in New York, and work for three years to obtain a medical degree, and for a lifetime to try to be worthy of her."

CHAPTER II

STUDENT DAYS

ENCHANTING as his play days were, young Trudeau felt that he must soon settle down to some sort of work. His brother had found a job in a business office, but Edward for some unknown reason decided to enter the United States Navy. He went to a preparatory school at Newport, where the Naval Academy and the old ship Constitution, on which the cadets lived, were then located. He was all ready to enter the Academy when the thing happened which was to change the whole course of his life.

His brother Frank, who had always been delicate, came to Newport to tell Edward that he had consumption. Edward loved his brother dearly. He gave up his appointment to the Naval Academy and returned with Frank to his grandfather's house in New York.

Frank had a type of tuberculosis which progresses rapidly, and Edward gave up all his time to nursing him. Nothing was then known of the cause of tuberculosis, and its treatment was exactly

the opposite of what doctors now advise. Frank's physician never told Edward what to do to avoid infection, because tuberculosis was not generally recognized as an infectious disease. The brothers occupied the same room and sometimes the same bed. The doctor called once a week and usually left some new cough medicine. He warned Edward never to open the windows, because, said he, "Fresh air will make your brother's cough worse." Through long days and nights of fever and sickness, Edward stayed with his brother and tried to amuse and cheer him. At last even his strong young body began to feel the effects of the long physical and mental strain as well as the lack of exercise and fresh air. Years later he wrote: "How strange that, after helping stifle my brother and infect myself through such teaching as was then in vogue, I should have lived to save my own life and that of many others by the simple expedient of an abundance of fresh air!"

After his brother's death in 1865, Edward felt like "one who is stunned by a blow on the head." For several months he drifted aimlessly. He sampled the amusements with which various friends and relatives sought to divert his mind. He sampled study for three months at the Columbia School of Mines. He tried work in a bro-

Edward Livingston Trudeau at Sixteen

ker's office. However, he was not interested in any of these occupations. At last his growing love for Lottie Beare and the memory of his brother's high ideals drove him to seek some sort of career in which he could prove his ability to settle down and make a living.

Before he had decided on what he wanted to do he had a quarrel with his grandmother and left home. His grandfather had died shortly after his brother's death and, except for an income which gave him enough for his clothes and spending money, Edward was dependent on his grandmother. The two had already had several "battles royal," but when the old lady told Edward in the course of a heated discussion that he would starve without her, the boy flew into a white rage. He said, "I will get out of your house within an hour, and I will never take another cent from you as long as I live." And he never did.

Hastily he packed his trunk and walked beside the truckman whom he had hired to convey it until he found a hall bedroom on the fourth floor of a boarding house. Then he sat down on the trunk in his room and wondered what to do next.

After this flare-up, Edward and his grandmother never had another quarrel. Indeed, they became very good friends. The old lady tried her

best to persuade Edward to return home and she often pressed money on him, even to leaving it in an envelope on a table in his hall bedroom. But, badly as the proud boy needed the money, he always returned it with thanks, and he stuck to the bedroom he had picked for his living quarters.

In the fall of 1868 Edward finally made up his mind as to what he wanted to do. Obeying an impulse which he later traced to the "blood of his ancestors," he decided to become a doctor. He therefore entered the College of Physicians and Surgeons as a student. The college then stood at the corner of Twenty-third Street and Fourth Avenue. The lecture rooms were sandwiched in between the dissecting room on the top floor of the three-story brick building and a drug store and ice-cream parlor in the basement.

Edward's friends had no faith in this sudden conversion to a life of study and work. One of them offered to bet five hundred dollars that he would never graduate, and not one of Trudeau's friends was found who dared to take the bet.

The medical schools of America in the late sixties required very little of their students. There were no entrance examinations. The medical student simply registered, paid a fee of five dollars, and attended two or more courses of lectures at the col-

lege. Before graduation he was required to pass short oral examinations given by each professor in his own subject. In addition, the candidate for a doctor's degree was required by law to attach himself for three years to a reputable practising physician. The student paid the physician one hundred dollars a year for this rather hazy relationship.

Trudeau chose as his preceptor Dr. H. B. Sands, who, in addition to being a practising physician, was a lecturer in surgery at the college. The first step in his medical career was a visit to Dr. Sands' office. Of this visit he wrote:

When I returned from my first visit to Dr. Sands, after entering my name in his office as one of his students, I carried under my arm a new Gray's *Anatomy* and, wrapped up in a piece of brown paper, two venerable human bones Dr. Sands had given me to study. By their dark appearance and high polish they had evidently been already used by generations of medical students, but I felt quite proud of them nevertheless. In after years I often brought much more unsavory and objectionable anatomical curiosities home for study, until finally my landlady objected. One of these dark yellow bones I decided at once was an arm bone, but the other, which looked like the flange of a propeller, I was utterly at a loss to place anywhere in the human body at first. Finally, with the aid of my Gray's *Anatomy*, I concluded it must be a shoulder blade, and began to try to memorize the extraordinary names of its parts and processes and of its muscular attachments, until they finally overcame me and I went to bed. This was the first step in my medical career, and the turning-point between an easy life of

pleasure to one of work and responsibility. After this my evenings were generally spent in the little hall bedroom with my *Anatomy* instead of at the club with my boon companions.

Almost all the teaching in the college was by precept. There was very little clinical, or bedside, teaching in those days. The professor stood up before his class, with a chart on the wall behind him, and poured his subject into his students' minds, "line by line, precept by precept." The charts were gigantic in size and vividly drawn and colored. In Trudeau's day the professor's pet student, under a pitiless bombardment of missiles, usually hung the charts up before the class at the beginning of the lecture.

The teaching of the professors equalled the knowledge of the day. What was taught was well taught, but there was much less to learn then than there is now. The medical student listened and read. He seldom observed for himself. Instead of working in a laboratory with microscope and test tubes, he looked at colored charts and occasionally at a dissected body. Instead of seeing symptoms for himself at the bedside of a patient, he took notes on the professor's description of those symptoms. Instead of seeing the effect of certain treatments for himself, he listened to the professor's account of how such treatments usually work. He and the

professor both wondered what caused certain diseases, because at that time the " exciting causes " of many diseases were not known.

Dr. Alonzo Clark — in his day a famous physician and teacher — taught Trudeau that tuberculosis was a " non-contagious, generally incurable, and inherited disease, due to inherited constitutional peculiarities, perverted humors, and various types of inflammation." Obsolete as this view of tuberculosis seems to us now, Dr. Clark was modern in his treatment. Trudeau once braved the gruff old physician in his office to ask his advice about a student friend who had tuberculosis. Dr. Clark said: " Tell your friend to go to the mountains and become a stage driver for a few years. Good evening." As driving a stage in the mountains means an open-air life in a bracing climate, with a fair amount of rest, this was certainly good advice.

The students stood in awe of Dr. Clark because of his great learning and reputation. He was gruff and short in his manner and often gave his students a dose of pitiless sarcasm. Trudeau, who was gay and kindly, often resented the bitter fun which Dr. Clark poked at some of the more timid students. Once at a public quiz the old professor called on a timid lad named Little to recite, adding, " ' Man

wants but little here below, nor wants that little long '; so make your answers as brief as possible, Mr. Little." Of course poor Little, covered with confusion, failed in his recitation. Trudeau vowed that he would get even with Dr. Clark.

One day in his lecture the doctor recommended " ice injections " for a certain disease. Trudeau passed a slip of paper to the professor, on which he had written, " What kind of syringe do you advise for injecting ice?" The doctor tore up the paper, giving Trudeau a keen look as he did so. When Trudeau came up to Dr. Clark for his final examination, the doctor's manner was so severe, and his questions so searching, that Trudeau always believed the old gentleman took that way of getting even with him for trying to poke fun at him about the ice injections.

While Trudeau was getting what he himself calls his " indifferent medical education," he was increasing by constant use that talent which more than any other led to the success of his life work — the talent of making and keeping friends. He was an engaging sort of person. His feelings had as many ups and downs as the mercury in a thermometer and they were as easy to read. At the top he was gay and joyous, at the bottom, gloomy and depressed; but he was always charming and lovable.

His faults were the honest salty faults with which humanity is seasoned, and people loved him for being so openly a human being. He had the staunch quick loyalty which led him to fight his brother's battles, to flaunt the Stars and Stripes in the face of the enemy, to get even with those who hurt the feelings of his comrades, to brave crusty old Dr. Clark to help a sick friend.

Above all he knew the worth of friendship. All through his *Autobiography* he gleefully reviews his list of friends, counts them up, as one counts the family silver, just to know they are all there, wonders why he has so many and why they are so good to him. He was delighted with his friends; he showed them off: "This is my friend; just see what he has done!" How could he help attracting friends wherever he went? And how could the friends in whom he delighted disappoint him when he wanted something very badly for some one else?

The companions of his old joyous play days tried hard to win him away from his medical studies, which they looked upon as a passing fancy. But when they found that young Trudeau was done with skylarking, they no longer bothered him. He was fond of athletics, however, and often went rowing with his friends on the Hudson River. In his frail one-man shell boat he rowed at different times over

almost every section of the Hudson. These trips with his friends were always filled with fun and adventure.

Trudeau was also a very fast walker. Once, on a bet, he walked from Central Park in New York City to the Battery in a little over forty-seven minutes. But he was not in training and the walk tired him out. It was shortly after this walk that Trudeau began to show symptoms of tuberculosis. But the doctors of those days did not recognize them as symptoms, and no one even hinted to him that his slight illness was of any importance.

During his medical course Trudeau went to see Lottie Beare as often as he could get an invitation. She and her father, an Episcopal clergyman, lived in Little Neck on the turnpike to New York. Trudeau spent the happiest times of his student days in the little rectory by the roadside.

Miss Beare allowed Trudeau to announce his engagement to her a year before his graduation from medical school. As he neared the end of his college course, Trudeau was so eager to be married that he could not bear to think of waiting through eighteen long months of hospital service. Finally he heard of a small new hospital about to be opened. If he could secure the position of house physician in this hospital, he would need to serve for six

months only. But the position must be won by competitive examination, and it was with fear and trembling that Trudeau, not yet graduated from medical school, presented himself before the examining physicians. To his great delight he passed the best examination and the position which would delay his marriage for six months only was his.

Trudeau entered on his hospital service at the Strangers' Hospital in New York on January 1, 1871. Since his examination for the M. D. degree did not take place until March, it was not even as a full-fledged doctor that he was given complete charge of all the wards. Up to that time he had never had the " slightest practical experience in seeing and treating illness and injuries at the bedside."

In speaking of this experience later, Trudeau said: " The patients may have suffered somewhat, but I certainly got a good deal of valuable experience during my six months in the hospital, because I was thrown on my own resources and had to do the best I could in emergencies with no other aid in most cases at first than my assistants, neither of whom had any more medical experience than I had."

The hospital work was very hard, but several

times a week, after the last attending physician had departed, Trudeau rushed off to spend the evening with Miss Beare. The trip to Little Neck took a long time in those days, and often on returning to the hospital at one o'clock in the morning he found his assistant asleep in his room, his instruments beside him, waiting for Trudeau to help him set a broken bone or perform an operation. Many a time Trudeau did not get to bed until three or four in the morning. No wonder he was thin and worn out when his hospital service was ended.

In order not to put off his marriage a day longer than necessary, Trudeau saved his two weeks' vacation for the end of his term of service. On June 29, 1871, he and Lottie Beare were married in Little Neck Church. Over forty years later Trudeau wrote, "And this was the red-letter day of my life!"

Dr. and Mrs. Trudeau went to Europe on their wedding trip. In Paris Trudeau took his wife to see the place where he had lived in his boyhood. The old caretaker of his grandfather's apartment was still living, and when Trudeau made him understand who he was, the decrepit, deaf old man turned to Mrs. Trudeau and, raising his hands, said: "They were all bad — but *that one!*" Words failed him!

On the return voyage to the United States the sea was very rough. Trudeau was seasick and Mrs. Trudeau despaired of ever reaching land. When her husband put their steamer trunk in the upper berth to keep it from floating about in the water on the cabin floor, Mrs. Trudeau calmly remarked, "What did you do that for? We shall never need it again."

As a result of fourteen days' seasickness and his general rundown condition, Trudeau was on the verge of a collapse when he reached New York. He had had a fresh warning of tuberculosis infection while abroad, but still the danger signals went unheeded. He consulted a well-known physician in Liverpool, England, and that gentleman advised him to eat plenty of bacon for breakfast and to take an iron tonic. The medical profession was on the whole still ignorant of the various ways in which tuberculosis infection sets to work.

[The reader will find it profitable, before continuing this account of Trudeau and his work, to read "The Story of Tuberculosis" presented in the Appendix of this book.]

CHAPTER III

INTO THE WILDERNESS

BOTH Trudeau and his wife loved the country, and after their wedding trip they took a small cottage near Mrs. Trudeau's old home in Little Neck. There they lived very happily for a year, and there their first baby, a little girl who was named Charlotte for her mother, was born.

Trudeau was eager to rise in his profession. Since he felt that he would have more opportunity to do this in the city, a year after his return from Europe he moved his family to New York. There he was taken into partnership by a well-known physician, Dr. Fessenden Otis. Things were going well, and Trudeau felt that he was on the way to success in his profession when the bolt fell which shattered all his dreams.

He had had several attacks of fever while in Little Neck, but thought nothing of them, since malaria was rife in that section. After he moved into New York he felt tired all the time, but thought that this was the result of the confinement of city life. One afternoon a doctor friend who thought that he

looked ill took his temperature. To Trudeau's astonishment it was 101°. His friend begged him to have his lungs examined by Dr. Janeway, a physician skilled in diagnosis. Trudeau laughed. "There can be nothing the matter with my lungs," he said. But in his heart he was worried, and the next morning, while passing Dr. Janeway's office, he decided that he might as well go in and have an examination.

When Dr. Janeway had finished the examination he said nothing. Trudeau ventured, "Well, Dr. Janeway, you can find nothing the matter?" And then Dr. Janeway told him gravely that he had tuberculosis of the lungs. It was a moment never to be forgotten. Trudeau wrote years later:

I think I know something of the feelings of the man at the bar who is told he is to be hanged on a given date, for in those days pulmonary consumption was considered as absolutely fatal. I pulled myself together, put as good a face on the matter as I could, and escaped from the office after thanking the doctor for his examination. When I got outside, as I stood on Dr. Janeway's stoop, I felt stunned. It seemed to me the world had suddenly grown dark. The sun was shining, it is true, and the street was filled with the rush and noise of traffic, but to me the world had lost every vestige of brightness. I had consumption — that most fatal of diseases! Had I not seen it in all its horrors in my brother's case? It meant death, and I had never thought of death before! Was I ready to die? How could I tell my wife, whom I had just left in un-

conscious happiness with the little baby in our new home? And my rose-colored dreams of achievement and professional success in New York! They were all shattered now; and in their place only exile and the inevitable end remained.

How little I could have realized then how many thousand times it would fall to my lot in a long professional life to tell other human beings the same dreadful truth! I think my own experience that day in Dr. Janeway's office was never forgotten and helped every time I made a positive diagnosis of tuberculosis to make me as merciful as was compatible with truthfulness and the welfare of the patient. Besides, it was not many years before a new hope, a hope which it was part of my life's work to help develop and demonstrate, could honestly be held out to patients; for the diagnosis of tuberculosis does not now carry the sinister meaning that attached to it in the early seventies.

The blow fell in February. Dr. Janeway urged Trudeau to go South at once, because in those days a warm, mild climate was thought best for tuberculous invalids. Trudeau and his family left for South Carolina within a few days. The doctor had advised Trudeau to ride horseback and to exercise daily. This treatment was then supposed to improve the appetite and keep up the strength of the patient. Naturally, Trudeau lost strength and weight instead of gaining, because, as we now know, rest is essential in the treatment of tuberculosis.

On his return to New York in April, Trudeau

was worse instead of better. He decided to spend the summer in the Adirondacks at the camp which Paul Smith, a famous guide, ran for hunters and fishermen. Trudeau says: "I was influenced in my choice of the Adirondacks only by my love for the great forest and the wild life, and not at all because I thought the climate would be beneficial in any way, for the Adirondacks were then visited only by hunters and fishermen, and it was looked upon as a rough, inaccessible region and considered a most inclement and trying climate. I had been to Paul Smith's in the summer on two occasions before on short visits with my friend Lou Livingston and his mother, and had been greatly attracted by the beautiful lakes, the great forest, the hunting and fishing, and the novelty of the free and wild life there. If I had but a short time to live, I yearned for surroundings that appealed to me, and it seemed to meet a longing I had for rest and the peace of the great wilderness."

A new baby, this time a boy, was born to the Trudeaus on May 18, 1873, and a week later Trudeau and his friend, Lou Livingston, set out for Paul Smith's. It was a sad home-leaving for Trudeau. He and his wife and friends knew that he was desperately ill. When his friend helped him into the cab which was to take him to the station,

Trudeau's heart was heavier than at any time since his brother's death.

Had it not been for Trudeau's determination, this first trip into the wilderness, which has meant so much to thousands of persons suffering from tuberculosis, would never have been taken. He was so ill and weak when he reached Plattsburg, near the head of Lake Champlain, that the hotel people there begged Lou Livingston not to take him to so rough and remote a place as Paul Smith's. But Trudeau was so upset at any hint that it would be best to return home that Lou let him have his own way.

From Ausable Forks, the last stop on a little branch railroad, the distance to Paul Smith's was forty-two miles over a rough corduroy road. Trudeau was placed on a mattress on the floor of an old-fashioned two-horse stage wagon, and the trip started. Lou and the driver sat joking and smoking on the front seat, but for Trudeau, shaken by the jolting of the wagon on the rough road, it was a day of misery. Just as the sun was setting, they reached Paul Smith's camp, which lay among great pine trees on the shore of St. Regis Lake.

Through the noise and confusion of their welcome, Trudeau managed to whisper to Mrs. Smith's brother, Fred Martin, that he was sick and wanted

to go to his room. Martin picked him up as if he had been a baby and, running up two flights of stairs to Trudeau's room, laid him carefully on the bed. Then the strong sturdy fellow looking down at the thin fragile figure on the bed made the classic remark, " Why, Doctor, you don't weigh no more than a dried lambskin."

The Sun Was Setting over St. Regis Lake When Trudeau Reached Paul Smith's

From the moment of his arrival at Paul Smith's, Trudeau began to feel better. He ate more for supper than he had eaten for many a long week, and in the morning, after a good night's sleep, he waked full of hope and courage. The first thing he did was to hire a guide, for he loved to hunt and fish. After breakfast the guide came to tell Trudeau that he had fixed up a boat " comfortable " and that if the sick gentleman felt up to it they could go for a

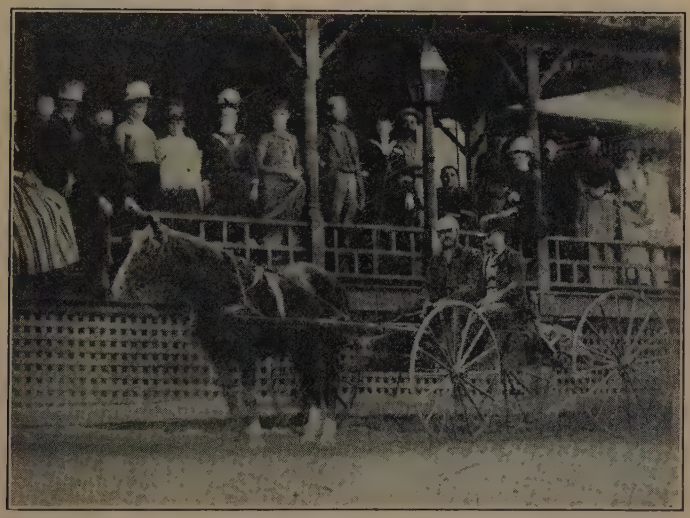
row down the river "kind of slow." Trudeau's hunting blood responded at once. With his rifle within easy reach he lay on the soft balsam boughs in the stern of the boat and forgot in the beauty of the sunny June day, that he had ever been sick and miserable.

Trudeau was a wonderful shot. On that first morning, without even sitting up in the boat, he shot a deer that he saw feeding on the bank of the river. He went back to the hotel triumphant. And that is how the first tuberculosis patient in the Adirondacks spent his first day.

From then on Trudeau began to improve. The constant outdoor life in the mountain wilderness had a wonderful effect on his health. He began to eat and sleep and he lost his fever. The essential value of rest in treating tuberculosis was not known then, but Trudeau spent long days in the boat fishing or watching the shores of the lake for deer while the guide did the heavy work of rowing.

His friend, Lou Livingston, stayed with him until July. Then another friend came up to look after him. This was E. H. Harriman, who was to achieve fame as a railroad organizer and financier. But when Ed Harriman came to Paul Smith's in 1873 to look after his friend, he was a light-hearted young man with no thought of the responsibilities

and struggles ahead of him. Paul Smith had a flagpole in front of his hotel, on the top of which a bright gilt ball glittered. Trudeau warned Paul Smith that if Ed Harriman saw that ball he would have a shot at it. No sooner had Harriman stepped



TRUDEAU WITH E. H. HARRIMAN

from the stagecoach, rifle in hand, than he caught sight of the bright ball on top of the flagpole. He put a bullet through it before shaking hands with his friends!

The two comrades spent the beautiful summer days hunting, fishing, and camping together. In later years Harriman forced money kings to wait

outside his office while he and a frail country doctor talked over the good old days at Paul Smith's, when they both were young. All that a good friend could do to help Trudeau in his years of struggle and sorrow, Harriman quietly did.

In September, sunburned and with a gain in weight of fifteen pounds, Trudeau returned to New York. He felt so well that he tried to persuade his physicians and friends to let him stay in town, but his fever came back, and he himself soon saw how foolish this would be. He and his family spent the winter in St. Paul, Minnesota, but because he was allowed to exercise as much as he liked, he was nearly as sick by spring as he had been the year before. In June he and his wife and two children went back to the place Trudeau loved best, the Adirondacks. He was criticized for bringing small children to such a wild, remote place, but little Ned and Chatte throve all summer. Trudeau himself failed to improve as much as he had the summer before. He therefore made up his mind that he would spend the winter in the Adirondacks.

It was an unheard-of thing for an ' outsider ' to spend a winter in the Adirondacks then. Most people thought that it would be little short of suicide for a person ill of tuberculosis to try it. And yet Mrs. Trudeau quietly and bravely agreed to

Trudeau, Three Months after His Arrival at Paul Smith's in 1873

stay at Paul Smith's with her husband. To this gently bred young woman, Trudeau's self-imposed sentence to an Adirondacks winter must have seemed terrible. Even an ardent lover of the country would have considered this remote place in

WINTER IN THE ADIRONDACKS

the wilderness to be the last outpost of civilization, and Mrs. Trudeau was a city-bred woman, fond of city life, and with a taste for the elegant and the refined. But so great was her love for her husband that she gave up everything that was dear to her to enter upon the great experiment with him. She knew that she must not only endure isolation and

the inconveniences and hardships of an Adirondack winter, but that she must also face the possibility of her husband's serious illness. In that event she could not secure help, for the nearest doctor was sixty miles away and the roads in winter were often impassable.

Trudeau was encouraged to winter in the Adirondacks by Dr. Alfred Loomis, who had examined him at the end of the summer. Later Trudeau heard that Dr. Loomis saw no hope of his recovery and thought that his patient might as well spend what was left of his life where he was happiest.

Trudeau had won the approval of his wife and his doctor, but now he was obliged to win over Paul Smith and his wife to his plan. At first they refused to have anything to do with Trudeau's mad scheme to winter at their camp. No outsider had ever passed a winter there before. For a sick man and a delicate lady and two small children to try it seemed to both of them a rash and silly thing. At last Mrs. Trudeau won Mrs. Smith over, and then Paul Smith was obliged to surrender.

In the fall Mrs. Trudeau and the children went to New York for a visit. While they were away, Trudeau's mother came all the way from France to Paul Smith's to stay for a few weeks with her son. She had lived in France for so long that she was a

"perfect type of refined French lady." The Smiths were enchanted with her, and she in turn was delighted with their dry salty humor. Paul Smith was a jovial host. His strong personality pervaded his camp. It has been said of him: "When Paul Smith first came to the Adirondacks,

PAUL SMITH'S IN 1874, AS PAINTED BY TRUDEAU'S MOTHER

the woods were full of Indians; when he died they were full of millionaires; among both, old Paul was always equally at home."

Trudeau's mother was also delighted with the wintry beauty of the camp. She painted a picture of the old hostelry as it was then and this picture hangs in the parlor at Paul Smith's to this day.

After many weeks of happy companionship with her son, she left for France. This was the last time that Trudeau saw his mother.

On the January day that she left, Trudeau's family came up from New York to join him for the remainder of the winter. Trudeau drove forty miles in his little sleigh to take his mother to the station and to meet his family.

A raging blizzard introduced Mrs. Trudeau and the children to an Adirondack winter. When Paul Smith arrived with two teams to convey the party to his camp, the snow was already very deep. Shortly after a start had been made, a biting north wind arose. The horses wallowed up to their shoulders in snowdrifts. At last, to keep them all from freezing to death, Paul Smith dug a cave in a snowdrift where the Trudeaus were quite comfortable until a fresh start could be made.

At one time when the horses had fallen down exhausted in the snow and Trudeau was beginning to wonder whether he would ever get his little family safely to the camp, Paul Smith turned to him, grinning, and said, "Doctor, don't you know Napoleon said, 'The dark regions of Russia are only fit for Russians to inhabit'?" But the adventure ended happily. Three days after the start from Malone, tired, cold, hungry, and baggageless, the

Trudeaus entered the warm firelit camp in the wilderness.

All during that first winter Trudeau kept well and rarely had any fever. He and the children and his wife had a very happy time in spite of their rough surroundings. It was during this winter that Trudeau learned the value of rest and cold air.

How Visitors Reached Paul Smith's in the Seventies

He found that after walking a great deal on a fox hunt he felt sick and feverish the next day. He walked very little after this discovery, and as time went on his faith in the rest cure for tuberculosis increased steadily.

When people began to come to the camp in the

spring, they were astonished to hear that the Trudeaus had wintered at Paul Smith's. The regular summer guests of the hotel soon arrived, and among these Trudeau made many life-long friends. He had almost forgotten that he was a doctor. But the summer guests at the hotel sometimes needed a physician; so Trudeau sent for a supply of medicines and began to do some medical work again.

CHAPTER IV

SARANAC LAKE

AT the end of the summer, Dr. Loomis, who examined Trudeau from time to time, was surprised to find that, although his patient was not much better, he was certainly no worse. He approved of Trudeau's plan to spend another winter in the Adirondacks. As Paul Smith and his wife had decided not to spend that winter at the camp, Trudeau was obliged to hunt for a house of his own. He finally found one at Saranac Lake.

When the first white man came to Saranac Lake in 1818, the region was known as Forty-Mile Forest. This first settler, Jacob Moody, cleared land and erected a log homestead near what is now the center of the village. When Trudeau moved to Saranac Lake, the village consisted of a sawmill, a small hotel for guides and lumbermen, a schoolhouse, and about a dozen guides' houses scattered over an area of one-eighth of a mile. There was one little store where flour, sugar, a few groceries, tobacco, and patent medicines were sold.

Trudeau and his little family moved to Saranac Lake in November, 1876. For the rest of his life he lived there during the winter and at Paul Smith's in summer. During those early years Trudeau lived the life of the natives in many ways. He hunted and fished and swapped yarns with the

THE TRUDEAUS BOARDED FOR SEVEN YEARS IN THIS GUIDE'S HOUSE IN SARANAC LAKE VILLAGE

guides, who loved him for his remarkable skill with the rifle and for his kindness to them and their families.

He practiced medicine among the natives for forty miles around. It is said that half of his bills were never rendered and a quarter of the other half never paid. He never charged the guides or their families for medical services. It was then that he

came to be known as "the beloved physician." Many of his prescriptions were filled at the general store where "stovepipes and pills were sold over the same counter." He was called in to attend ailing animals as well as human beings and in the tattered ledger of the country store his prescription for mange cure was entered as well as his prescription for the treatment of a common symptom of tuberculosis.

During these early years at Saranac Lake, Trudeau met the two guides, Fitz Greene Hallock and Albert McKenzie, who became his lifelong friends. In the winter he hunted foxes or rabbits every day with Fitz Hallock, and in the autumn he and Al McKenzie went into camp for the deer hunting. He was rowed to his watch ground for the deer hunting and in winter was driven in his sleigh to the rabbit hunting grounds. In this way he avoided exertion and yet managed to be outdoors all day long, doing the thing that he loved best.

During the winter of 1880 the visitors at Saranac Lake formed a little gun club. The eight members of this club each contributed five dollars to make a prize of forty dollars which was to go to the member who shot the biggest rabbit between January 1 and April 1. The whole village entered into the spirit of the competition. The rabbits

Trudeau with His Guide, Fitz Hallock

were weighed at the store and the biggest rabbit to date was hung out in front for the inspection of the village.

Three days before the competition closed, a rabbit weighing four pounds, five ounces, which Trudeau had shot, was taken down and a rabbit weighing four pounds, six ounces, shot by one of his rivals was hung up in its place. Poor Fitz Hallock was terribly disappointed. He had thought that Trudeau's last rabbit would never be beaten. For the next three days he and Trudeau hunted all day long.

On the morning of March 30, Fitz took the doctor to a little swamp at the foot of a side hill where huge rabbit tracks had been found. It was snowing when they reached the hunting ground, and Trudeau says that he stood there shivering and wishing himself at home. But Fitz, his face stern and set and in his hand a spring scale to weigh the rabbits, was as intent as ever. Soon Trudeau caught sight of a rabbit bounding down the hill. He says:

> It seemed to me I never saw a rabbit take such long jumps, and as he went by me I killed him. Fitz was on him in a minute. I saw him raise the spring scale to his eye; then, in a most commanding voice, he simply said, "Come on!" and strode toward the place where the horse was tied. I followed as best I could. He had the horse unblanketed and was in the cutter when I reached there. He handed me the reins and said,

"Run your horse; he is the biggest rabbit yet." . . . As we entered the village on the run the guides came to their doors, guessing something unusual had happened, and many of them were waiting on the porch of the store, into which Fitz disappeared at once. He soon reappeared among the laughing, shouting men, with my rabbit, to which was tied a tag with my name and the legend, "Four pounds, eight and a half ounces."

That was a proud moment for Fitz and for me! That afternoon and for many following afternoons the entire side of the Berkeley Hotel was decorated by a gigantic white paper rabbit on which was written "Four pounds, eight and a half ounces."

The Church in Saranac Lake, 1879

As the years of hunting and fishing and "doctoring" went by, Trudeau's health improved steadily. He gained in weight and lost his cough almost entirely. Dr. Loomis, who was greatly impressed by his improvement in health, sent him a few tuberculous patients to try the effect of the

winter climate. More houses began to spring up in the village of Saranac Lake, and an increasing number of people stayed during the winter months. Paul Smith's became more and more popular as a summer resort. Trudeau had an increasing number of patients to attend and began to take more interest in his profession.

He read regularly a number of medical magazines, and it was in one of them that he found the article which gave him the idea of building a sanatorium. This article was an account of a visit to Dr. Herman Brehmer's sanatorium for the treatment of tuberculous patients in Prussian Silesia. Dr. Brehmer had established his sanatorium in 1859. It was founded on the principles set forth in 1840 by an obscure English country doctor, Dr. George Bodington. Dr. Bodington had established a little sanatorium for the treatment of tuberculosis in Sutton, Warwickshire, England. It was the first sanatorium in the world for the fresh-air treatment of tuberculosis. Dr. Bodington insisted on fresh air for the patients, even in winter, good food, and a regular daily routine under the doctor's orders. His insistence on fresh air spelled his ruin. People then believed that a person sick with tuberculosis must be protected from any breath of fresh air. They reasoned that a doctor who recommended

Dr. Herman Brehmer

fresh air, and especially cold, dry air, must be insane. So roughly was Dr. Bodington handled by the medical critics of his day that he was obliged to turn his tuberculosis sanatorium into an asylum for the insane.

Dr. Bodington's principles had been set forth in his *Essay on the Treatment of Pulmonary Consumption*. These principles made a strong appeal to Dr. Brehmer. He was at first ridiculed and opposed, but he would not give up, and by his persistence he succeeded in giving to the world the first convincing proof of the value of the sanatorium treatment of tuberculosis. The essence of this treatment was rest, fresh air, and a daily regulation by the physician of the patient's life and habits. Brehmer believed, however, that tuberculosis of the lungs was in some way related to a small heart. For this reason he prescribed graded climbing exercises for his patients, after the fever had fallen, in order to strengthen the heart.

It was Dr. Brehmer's assistant, Dr. Peter Dettweiler, who first emphasized the importance of complete rest in the treatment of tuberculosis. Dr. Dettweiler was himself a victim of that disease. He had been obliged to resign his position as a surgeon in the German army and had entered Dr. Brehmer's sanatorium, where he regained his health. For six years he remained as an assistant; then he founded a sanatorium of his own at Falkenstein. He followed Dr. Brehmer's methods, except that he insisted on complete rest for his patients.

Trudeau was much impressed with the articles

he read in an English medical magazine on these German sanatoria. He was convinced that fresh air and rest accounted for his own improvement and he was anxious to try this treatment on other tuberculous invalids, who would have the added advantage of sanatorium care. Another consideration which led to the founding of the sanatorium was the concern which Trudeau felt for poor patients who could not afford to rent cottages or to pay board at Saranac Lake. He thought that if he could only get enough money together to build a few small cottages, he could take poor patients at less than cost and at the same time try the sanatorium method.

With his usual enthusiasm, Trudeau set about raising the money. Since he meant to contribute his own services as a physician to this sanatorium of his dreams, he felt no hesitation in asking his wealthy patients and friends to help him with his plan. He was encouraged by Dr. Loomis, who promised to send him any poor patients who applied to him and to examine them free of charge. Trudeau got a blank book and began to solicit subscriptions. When he went to New York for a visit in the fall, he put his pride in his pocket, together with his little book, and called on all the people who would be likely to help him.

Most people did not understand what he was trying to do as they argued that consumption could not be cured. It seemed to them that to herd consumptives together in one place, and especially in a place so remote and so harsh of climate, would surely have a most depressing effect on the very ones he was trying to help. But Trudeau was irresistible. It was plain to see that this visionary meant well, and there was no harm in letting him try his wild scheme. Accordingly, most of the people whom he went to see gave him something, even if it was only a small amount. By fives, by tens, by hundreds, occasionally by thousands, the sum of dollars set down in the little book grew. When Trudeau returned to Saranac Lake he had actually collected three thousand dollars, and the subscription list continued to mount steadily. He felt that by the next spring he might venture to put up one little building.

CHAPTER V

THE BEGINNING OF THE SANATORIUM

NOW he was ready to choose a place on which to build the first little cottage. On Pisgah Mountain, overlooking the valley of the Saranac River, there was a level piece of ground which had always been Trudeau's favorite fox runway. He knew that it was perfectly sheltered from both the north and west winds, for he had spent many days there while fox hunting with Fitz Hallock. If dreams can dedicate a place, then this spot had long been dedicated to Trudeau's great purpose. Here he had dreamed that the forest had melted away and that the mountain-side was covered with little houses built inside out. Many years later, after his dream of a great sanatorium that should be the everlasting foe of tuberculosis had come true, Trudeau said of this old fox runway:

Here the mountains, covered with an unbroken forest, rose so abruptly from the river, and the sweep of the valley at their base was so extended and picturesque, that the view had always made a deep impression upon me. Many a beautiful afternoon, for the first four winters after I came to Saranac Lake, I had sat for hours alone while hunting, facing the ever-

changing phases of light and shade on the imposing mountain panorama at my feet, and dreamed the dreams of youth; dreamed of life and death and God, and yearned for a closer contact with the Great Spirit who planned it all, and for light on the hidden meaning of our troublous existence. The grandeur and peace of it had ever brought refreshment to my perplexed spirit.

This spot always has had a wonderful influence on me, and it is not to be wondered at that I decided almost at once to place the first little wooden building of my proposed Sanatorium on it. After thirty years' experience I can say that I have never regretted it, and the view from the Sanatorium has been one of its most valuable assets.

Other people whom Trudeau consulted agreed with him that the fox runway on Pisgah Mountain would be a good place on which to build. But Fitz Hallock said that it was "too bad to spoil a good fox runway by building a sanatorium on it."

The chosen site was part of a parcel of land called "Preacher Smith's Pasture." The guides, no matter what private opinions they may have held of their friend's scheme, gave Trudeau a most pleasant surprise by purchasing for him the sixteen acres that comprised the site. As the land was covered everywhere with huge boulders, Trudeau thought whimsically that it looked more like a pasture for goats than a spot for a sanatorium. But the rocks turned out to be very useful, for they furnished plenty of stone for new buildings.

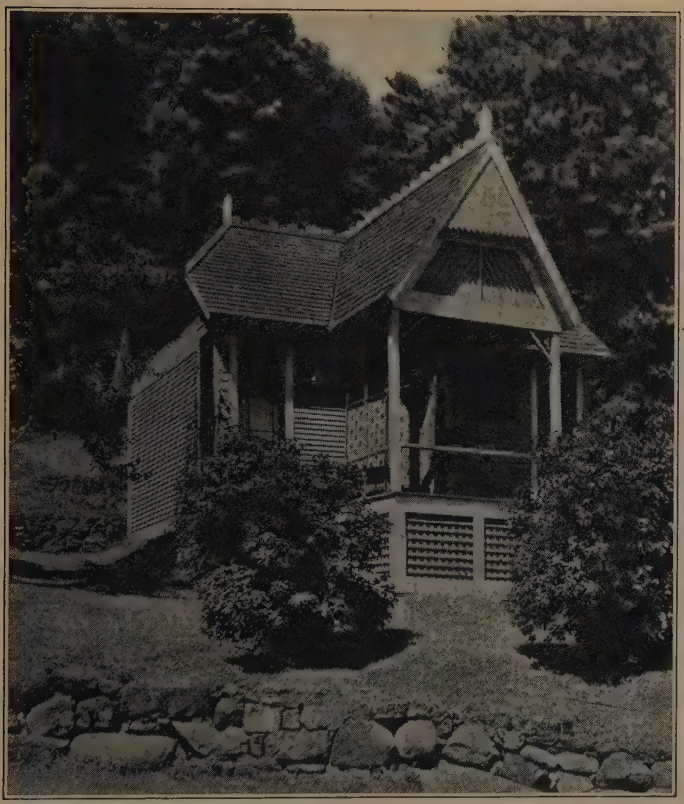
Trudeau had not the slightest knowledge of what sort of buildings to plan for a sanatorium and he could not find the information in books. Tuberculosis was not then generally considered infectious, and consumptives were put in medical wards in hospitals alongside other cases. Trudeau, however, felt that it would be better to segregate the patients in small cottages. By doing this an abundant supply of air could be furnished each patient, and the irritation of constant close contact with many strangers could be avoided. Moreover, in raising money, it would be easier, he felt, to persuade a person to put up one little cottage which would be his own individual gift than to get him to contribute something toward a large building. Thus with engaging candor this man who was so transparent in all his dealings lets us into one of his little naïve devices for raising money. Though, had he not thought that the cottage plan was best for the patients, we may be quite sure that he would have set himself to the task of pulling a large building, piecemeal, out of the pockets of his friends and acquaintances.

He decided to start with one wing of a main building in which could be housed a kitchen, dining room, sitting room, and office, and then to build two small cottages.

One of Trudeau's patients, Mr. D. W. Riddle, who became the first treasurer of the Sanatorium, superintended the business of building while Trudeau hunted for some one to run the place, once it was habitable. He knew no more about the sort of staff he needed than he knew about what sort of buildings to put up. Finally he engaged a farmer to work the place, and the farmer's wife and daughters to do the housekeeping. These people had never heard of a sanatorium of any kind and had not the faintest notion of what they were supposed to do. They moved into the main building in the summer of 1884, although it was only partly finished at that time.

To this amateurish establishment, in the fall of 1884, Dr. Loomis sent the first patients. They were two sisters, both factory girls. When they arrived, they were sick, poorly clad, half-dead with fatigue, and probably frightened at this drastic change from a crowded tenement to the wilderness. Trudeau took them in, examined them, found them warm clothes, and encouraged them to the best of his ability. This was the beginning of a " service of personal attention " which was to end only with his death.

At that time only the foundation and frame of the first little cottage had been built. It was not



"The Little Red," the Pioneer Cottage in the Sanatorium Treatment of Tuberculosis in America

ready for occupation until February 1, 1885. This cottage, called "The Little Red," is known to fame as the pioneer cottage in the development of the sanatorium treatment of tuberculosis in America.

It consisted of one room, fourteen by eighteen feet, and a little porch so small that only one patient could sit out at a time. It was furnished with a wood stove, two cot beds, a washstand, two chairs, and a kerosene lamp. It cost about four hundred dollars.

The great experiment began on a foundation so flimsy that Trudeau thirty years later said, "Truly, I must have been an optimist by nature, and the joy of life and youth must have run in my veins then." For the rest of his life he could always shut his eyes and distinctly see the Adirondacks Cottage Sanatorium as it was in its infancy.

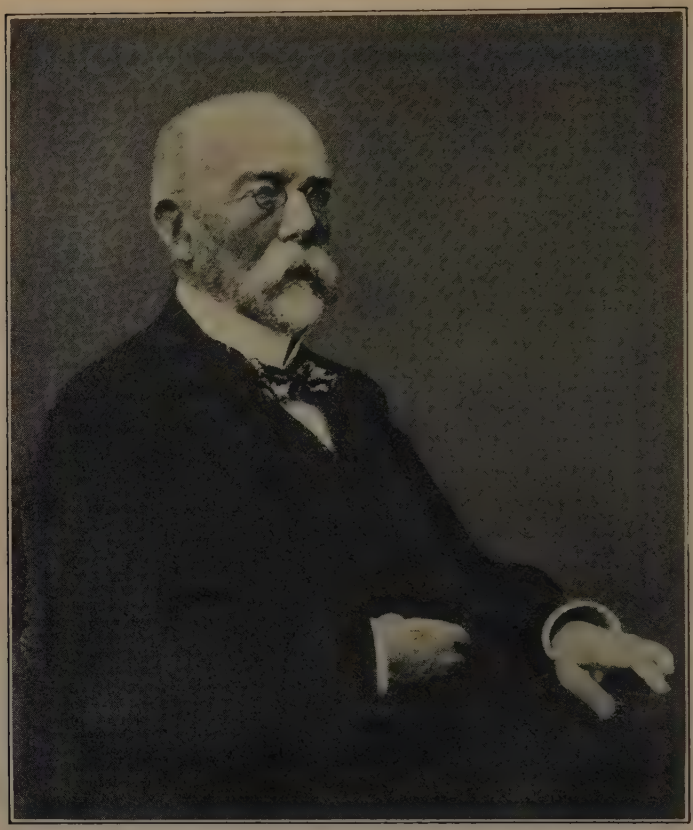
The grounds were a rough hillside covered with scant grass, through which everywhere jutted boulders of varying sizes, a few rising four or five feet above the ground. Not a sidewalk, not a path anywhere! The buildings, a small rough-board and shingle barn, one unpainted wing of the main building without any porch, and one small unpainted cottage! The patients, two frail, ill-clad factory girls! The staff, a farmer, his wife and two daughters — all this humble agglomeration situated in an unbroken forest forty-two miles from the nearest railroad!

CHAPTER VI

TRUDEAU AS A SCIENTIST

IN the year 1882, that eventful year in which Trudeau first thought of trying the sanatorium treatment of tuberculosis, a German physician, Robert Koch, announced his discovery of the tubercle bacillus. Koch, who was born in 1843, began his professional life as a country doctor. He varied the monotony of long journeyings over rough country roads by private microscopical studies. Previous to his discovery of the bacillus which causes tuberculosis, he had already made his name famous in his work on the life history of the anthrax bacillus and on the causes of various wound infections.

In this early work Koch had perfected a method of cultivating living bacteria on a solid food substance composed of gelatine and meat broth. By growing the bacteria in a solid substance where they could not move about, he was able to obtain a pure culture of any one species — that is, a little colony of bacteria all of the same breed. He had also perfected a method of staining bacteria with anilin dyes so that they could be identified and



DR. ROBERT KOCH WHO DISCOVERED THE TUBERCLE BACILLUS

studied under the microscope. Koch has been called the founder of the science of bacteriology because he perfected the laboratory technique by which tiny living organisms can best be studied.

By using his methods of growing and staining bacteria, Koch identified the bacillus which causes tuberculosis, and in 1882 he published his discovery in a paper called *The Etiology of Tuberculosis.* In the judgment of Trudeau this paper was " one of the most — if not the most — important medical papers ever written."

Trudeau first read one or two abstracts of Koch's paper in medical journals. His imagination was at once stirred by the news. He was acquainted with the germ theory of contagious diseases and wound infections as developed by the great French scientist, Louis Pasteur. He knew that the Scottish surgeon, Joseph Lister, had accepted Pasteur's theory that wound infections are caused by tiny living organisms and had actually proved that a surgical wound would heal cleanly if, by the use of antiseptics, the wound were kept free from living organisms.

Trudeau saw the dawn of new achievements breaking over the medical world. The possibilities of the new experimental method introduced into medicine by Pasteur, Koch, and Lister took strong hold on his imagination. If it were true that a tiny invisible microbe caused tuberculosis, then every least fact that could be learned about it must " prove of immense importance to mankind."

Trudeau deserves great credit for his instant recognition of the importance of Koch's discovery. He was eager to learn more about it, but Koch's paper was written in German, a language which Trudeau did not know. Mournfully he told his friend, C. M. Lea, a member of a firm of well-known medical publishers in Philadelphia, that there was no use in his trying to get a copy of the paper since he could not read it if he had it. Lea promised to do a little detective work among the physicians of Philadelphia and find out for Trudeau what they thought of Koch's discovery. He found that they, as well as most of the physicians in the country, either were indifferent to it or ridiculed it.

But the indifference shown by the medical men did not prevent Mr. Lea from giving his good friend Trudeau one of the " pleasantest surprises " he had ever had in his life. He had a very full translation made of Koch's paper and gave it to Trudeau as a Christmas present. Trudeau says, " Surely I never had a Christmas present that meant more to me than that big hand-written copy-book. I read every word of it over and over again."

Trudeau was so convinced of the truth of Koch's conclusions and of the far-reaching importance of his discovery that he was extremely anxious to repeat the German doctor's experiments. He was

confident that he could cure and prevent tuberculosis if only he could get the bacillus in his hands and study it. He was only a backwoods doctor with an "indifferent medical education." He had never heard the word "bacteriology" before. He lived in a wilderness which made access to a medical library, scientific apparatus, and discussion with other physicians impossible. But he possessed a microscope and an intuition so rare that he instantly recognized the importance of a discovery at which more fully equipped physicians turned up their noses.

He rushed to New York at the first opportunity and begged his medical friends to help him find out all about this new wonder. They neither knew nor cared anything about it. At last he obtained a card of introduction to Dr. T. Mitchell Prudden, who taught pathology at his old medical school, the College of Physicians and Surgeons.

The college building was still located at Twenty-third Street and Fourth Avenue. As Trudeau climbed the steps, joyous memories of his college days came crowding back to him. In his day there had been no laboratory connected with the college. But now, next to the ice cream parlor and drug store, he found a large room where students sat about a long, low table peering through micro-

scopes. A little feeble light filtering through the dingy dust-covered windows penetrated the gloom. A ladder rose from the floor to a little room perched about twelve feet above the heads of the industrious students. Trudeau climbed this ladder and found the man whom he had come to see, the famous Dr. Prudden.

"Yes," said Dr. Prudden, after Trudeau had presented his card of introduction, "you may come to the laboratory. Yes, you can learn here how to stain the tubercle bacillus. You may have a microscope when the class is not using it. Dr. Hodenpyl will show you how to make the stains." And that was all. Trudeau was bowed through the trapdoor and descended the ladder into the laboratory.

There he was given a microscope and seat at the long table. Dr. Hodenpyl, a young doctor who had picked up a little laboratory technique in the science of bacteriology, gave Trudeau a specimen said to contain the tubercle bacillus. Thus the lessons began, "a special course of a week or two which for results has had few equals anywhere."

Trudeau, in describing these important lessons says:

> During the first three days I worked unremittingly, and stained my fingers, my clothes, even my shoes; and if I stained the bacillus I decolorized the specimen either too much or too

little, so that the germ remained invisible under the microscope. Several times I became discouraged, and had it not been for a certain amount of natural persistence, and Dr. Hodenpyl's keen sense of humor in criticising and laughing at my failures, I should have fled from the laboratory and never returned.

At first Dr. Prudden took little notice of me, and I hardly dared climb the ladder and disturb him in his elevated sanctum; but after several days had passed and he still saw me at my microscope, he asked me to show him my slides, and, no doubt won by my persistence, he sat down beside me and pointed out to me where my mistakes had been. At last I succeeded, and remained that day until late, repeating my attempts on different specimens until I was quite sure I could bring out the bacillus on the slides. Like the pilot who, when asked if he knew the harbor, said to the captain he certainly did, for he had been on every rock, my knowledge had not been acquired easily, but I knew thoroughly what to avoid doing to insure success; and now I could return to Saranac Lake, study some of my doubtful cases by this test, and begin to repeat Koch's work in growing and inoculating the germ.

Back in Saranac Lake once more, Trudeau began at once to equip a little laboratory for himself. He and his family had boarded in a guide's home since 1876, but in 1883 he had built a little cottage of his own. Here, in a small room twelve by eight feet, he installed what simple apparatus he could make or obtain.

In his determination to repeat Koch's experiments and obtain pure cultures of tubercle bacilli,

he met and overcame tremendous difficulties. His water supply came from a big pail and dipper standing on one end of a broad shelf. His drainage system was a lead pipe leading from a sink to a pail on the floor. His reference library was the hand-written copy of Koch's paper. His apparatus con-

In This Cottage, Built in 1883, Trudeau's Laboratory Had its First Home

sisted of a few boxes of slides, some bottles of stain, a microscope, a sterilizer, and a homemade thermostat.

This thermostat gave Trudeau more trouble than all the rest of his primitive outfit combined. Its purpose was to maintain exactly the right amount of heat for growing the tubercle bacilli. He had

only seen one thermostat for cultivating bacteria and that was in Dr. Prudden's laboratory. He had the village tinsmith send for some copper and make a thermostat according to his directions. It consisted merely of two copper boxes, one set inside the other. The space between the two boxes was filled with water which was heated from beneath by a tiny kerosene lamp. The thermostat worked very well in the daytime, but since the only fuel available in Saranac Lake was wood, and as the woodstove in the laboratory went out at night, the resulting marked drop of temperature in the room caused a corresponding fall in the temperature of the thermostat. To overcome this difficulty, Trudeau put the thermostat in three or four wooden boxes, each a little larger than the other, and packed the intervening spaces with wool and sawdust. The boxes all had doors, and by closing and opening these according to the outside temperature Trudeau was able to maintain a fairly even heat in his little apparatus. It was in this crude homemade thermostat that Trudeau first succeeded in growing tubercle bacilli in pure cultures outside of the body.

"With this humble outfit," says Trudeau, "I began with much enthusiasm, in my imagination, the conquest of the tubercle bacillus, and if I have never come 'within sight of the castles of my

dreams,' I at least have made some progress along the road leading to them and started others in the same direction, for I was, as far as I can ascertain, the first in this country to cultivate the tubercle bacillus and confirm Koch's brilliant discovery."

This confirmation of Koch's results by a backwoods doctor working far away from the scientific haunts of men makes as romantic a story as that of " Koch, the country doctor, founding the science of bacteriology in the curtained rear of his office at Wollstein." Years later the two men sat beside each other at a conference in Washington. Trudeau told Koch how excellent his work must have been to enable an untrained man to repeat his experiments under the most trying difficulties. And Koch smiled benignly at Trudeau's description of the homemade apparatus and the makeshifts of which his disciple had been obliged to make use.

Trudeau lost no time in putting his newly won knowledge to practical use. In the summer of 1885 a young college student came to Paul Smith's to consult Dr. Loomis about a slight cough and a persistent loss in weight and strength. Dr. Loomis was off hunting and the young man came to Trudeau. Trudeau could find nothing the matter with his lungs, but he was so enthusiastic about his ability to stain the tubercle bacillus that he ex-

Trudeau on His Way to Visit a Patient

amined the young man's sputum under the microscope. To his surprise he found the tubercle bacillus present. He told the patient to quit college and go West, where he could lead an outdoor life for a time. But the young man was so big and strong that he could not believe that he had tuberculosis. He waited at camp to get Dr. Loomis's opinion. That physician "didn't believe much in germs." He told the young man that he could see no reason why he shouldn't return to college. Four months later this student had a hemorrhage in the classroom and was sent at once to Colorado.

Dr. Loomis, however, persisted in his unbelief for several years. When Trudeau showed him laboratory animals that had died of tuberculosis after having been inoculated with the tubercle bacilli, Dr. Loomis laughed and said that a cold night had probably killed them. When he finally accepted Koch's theory he wrote to Trudeau, "I hope you are satisfied now!"

Trudeau took great delight in convincing the unbelieving. He tells this story of the conversion of a country surgeon to a belief in the tubercle bacillus as the cause of tuberculosis:

Dr. D'Avignon had practised medicine and surgery many years at Ausable Forks, and was called upon in consultation and to operate all over the mountains. He was a shrewd,

resourceful, and skilful surgeon, and thoroughly interested in his profession. On one of his visits to Saranac Lake he called on me and found me in the little laboratory. He asked me about "the germs," in which he had as yet little faith; but he said, "Will you take the trouble to convince me?" I asked him what test he required, and he said, "I will send you five numbered samples, and if you can tell me which ones came from tuberculosis cases and which ones did not, I will believe it all." I agreed, and he left, evidently thinking he had me cornered.

The samples came, with only a number on each one, and I reported on them at once. Three contained bacilli and I wrote him the result and gave him the numbers. A more convinced and enthusiastic man than he was when he made his next visit I never saw. He had lost his contempt for "germs," and the little ironical smile he wore on his last visit as he looked at my culture tubes had disappeared. After that, when he had doubtful cases, he often sent me the samples for examination, and the results left his new faith unshaken.

As soon as Trudeau had succeeded in growing the tubercle bacillus in pure cultures outside of the human body, he started on a long series of experiments to try to find a cure for the disease. He first gave rabbits and guinea pigs tuberculosis by inoculating them with the bacillus, and then attempted to kill the bacilli in their tissues by the injection of various drugs. These experiments all failed and Trudeau was forced to the conclusion that "the tubercle bacillus bore cheerfully a degree of medication which proved fatal to its host."

Since he found that it was seemingly impossible to destroy the bacillus without destroying its host, he turned to another phase of the question. He began to seek experimental proof of the value of rest, fresh air, wholesome food, and a change of climate in the treatment of tuberculosis. He knew, of course, that this treatment was, in a great many cases, successful. But he wanted its value proved beyond a shadow of doubt. This is how he describes the famous rabbit experiment by which he proved conclusively that bad surroundings of themselves, as long as no tubercle bacilli are present, cannot produce tuberculosis, but that after the bacilli have entered the body, the course of the disease is greatly influenced by a favorable or an unfavorable environment:

Lot 1, of five rabbits, were inoculated with pure cultures [of tubercle bacilli] and put under the best surroundings of light, food, and air attainable.

Lot 2, of five rabbits, inoculated at the same time and in the same way, were put under the worst conditions of environment I could devise.

Lot 3, of five rabbits, were put under similar bad conditions without being inoculated.

Lot 1, I turned loose on a little island in front of my camp at Paul Smith's, where they ran wild all summer in the fresh air and sunshine, and were provided with abundant food. Lot 2 and Lot 3 were put in a dark, damp place where the air was bad, confined in a small box and fed insufficiently. The results

showed that, of the rabbits allowed to run wild under good conditions, all, with one exception, recovered. Of Lot 2, the same as Lot 1, but put in unfavorable surroundings, four rabbits died within three months and the organs showed extensive tuberculosis. Lot 3, uninoculated animals, were then killed and, though emaciated, they showed no tuberculous disease.

This experiment encouraged Trudeau greatly. The essence of the sanatorium treatment which he was carrying out was a favorable environment so far as climate, fresh air, food, and the regulation of the patient's habits were concerned, and his rabbit experiment convinced him of the soundness of this treatment. The simple principles of this treatment are still used and have saved and prolonged many lives.

Trudeau lived to hear of many so-called cures for tuberculosis. One by one he tested them in his laboratory and found them worthless. By publishing his results, he helped to send many a supposed cure to "deserved oblivion." He himself continued for a while to attempt to kill the living bacilli in the tissues with antiseptics. At last he realized that this was a hopeless task and, inspired by Pasteur's success in developing vaccines for anthrax, chicken cholera, and hydrophobia, he began to experiment with vaccines made of dead tubercle bacilli or of liquids from which the bacilli had been

filtered. Trudeau found that neither the dead bacilli nor liquids in which tubercle bacilli had once lived could protect rabbits and guinea pigs from tuberculosis.

He said so at once, and he said it in that same year of 1890 in which Koch startled the world with the announcement that in a substance called *tuberculin* he had found a cure for tuberculosis. Excitement was intense in the medical world. Trudeau had all he could do to restrain many of his patients from migrating to Berlin to be cured by Koch. A vial of the precious fluid sent to Trudeau by his friend, Dr. William Osler, was looked upon with awe. In that tiny glass bulb many thought there was life for hopeless invalids.

Sister Island, Upper St. Regis Lake

And yet Trudeau, although he did not know it at the time, had himself made practically the same substance in his laboratory by using a liquid culture from which tubercle bacilli had been filtered. He had proved that this substance could neither cure nor prevent tuberculosis in guinea pigs. Koch had devised tuberculin in a great laboratory in Berlin. Trudeau had made his substance in a badly equipped laboratory in the wilderness. Koch had tremendous hopes for his new substance. Trudeau had said that his was a failure. In the end Trudeau was proved to be right and Koch wrong. Within a few months tuberculin had failed to bring about the miraculous cures expected of it, and the resulting bitter disappointment led to its violent and widespread condemnation. Trudeau, however, had such great faith in Koch that he continued to use the remedy cautiously. It is used now mainly in the diagnosis of tuberculosis.

Trudeau was a true scientist. He had, to be sure, little scientific training. He was not a student in the sense that intellectual pursuits come first. But fate had set him a goal, and toward that goal he struck, looking neither to the right nor to the left. He was not to be sidetracked by the many complexities in his path. Every experiment that he made was directed toward this goal. He wanted to cure

and to prevent tuberculosis. And while his contemporaries were floundering in the mazes of "consumption cures" and "knockout" substances, Trudeau was quietly coming to the conclusion that

TRUDEAU, THE SCIENTIST

the simple principles of treatment represented by the first little sanatorium would save and prolong many lives long after the widely-heralded remedies and preventives had been forgotten.

His friend and associate, Dr. Allan K. Krause, in speaking of Trudeau's scientific work, says: "I believe that when the tuberculosis work that went on during Trudeau's professional life is sifted finally, the man will have to be given a place at the very apex of investigators, in respect to both discovery and solidity of performance. And the fact that he was not a professional scientist and that he worked with slender resources, as well as that he labored in moments snatched from the cares of practice and the burdens of building one of our greatest institutions, will put the stamp of genius on his scientific career. And while he plodded on, ever doggedly yet hopefully and enthusiastically, through his most productive years, we must remember that there . . . was always the spectre of tuberculosis haunting his own footsteps."

CHAPTER VII

THE GROWTH OF THE SANATORIUM

ALL through the late eighties, while Trudeau was fitting out his laboratory and tracking down the tubercle bacillus, the Sanatorium continued to grow. It did not grow by leaps and bounds. Very often things did not go well, and at times Trudeau was discouraged. He did not have any water supply until 1886, when a friend, Mr. George Cooper, bought for him some land on which a spring was located. Even then all the water had to be carried by hand to the Sanatorium. There was no coal; there was no drainage system; there was no fire protection.

Trudeau could not afford a resident physician and he had to do all the medical work at the Sanatorium himself. This meant that in summer he was obliged to drive with horse and carriage the fourteen miles each way from Paul Smith's to visit his Sanatorium patients. He had no resident nurse to look after and encourage the patients in his absence. He had no infirmary to which to send very sick patients, and no one to carry them their meals or

nurse them in their cottages. He had to depend on guides and lumbermen and any old woman he could find. These inexperienced helpers fled in a panic from the sickroom when any serious complications arose. A death was enough to make the whole staff desert in a body.

A Scene near Paul Smith's Camp

No one except his immediate friends seemed to care what happened to the struggling little institution. Above all, Trudeau himself "had no definite idea of just what to do and very little money with which to do anything." But in Trudeau's body ran the blood of the pathfinder. His great grandfather, Zénon Trudeau, had been one of the

" outriders of civilization." His own father, with a passion for the unknown and the new, had made his way through the unmapped land of the West. Now, in another uncharted region, in the building up of an institution which represented the very opposite of what most people thought good for the tuberculous invalid, this city-bred doctor showed

Dr. Trudeau in Camp, 1885

the adventurous pioneer spirit of the Trudeau stock.

So convinced was he of the value of his treatment, and so anxious was he to try it, that he had actually been willing to pay patients to come to him. Now he had the patients. He had been able to scrape together enough money to build something which could at least be called a sanatorium.

And mixed with the dark days there were enough triumphant ones to keep up his courage and faith.

There was, for instance, the day, a week after he had wished that some one would blow up the whole thing with a keg of dynamite, that he received a check. He looked at it and rubbed his eyes. He wrote the woman who had sent the check and suggested that she had made a mistake. "No, there has been no mistake," she replied. The check was for twenty thousand dollars.

Things like that happened to Trudeau. What friends the man had! Yet their generosity puzzled him. "Why are they so good to me?" he wondered time and again. Try as he might, Trudeau could never find the right answer to this question because he himself was the answer. It was not money alone that was given to him. His friends were not all capable of writing twenty-thousand-dollar checks. Many of them were poor and sick. There was, for example, a medical student, very ill, very poor, alone in the world, stricken with a dread disease, who saw at once how hard it was for Trudeau to manage without a resident doctor. To help Trudeau he stepped into the breach. And as Trudeau watched him filling the place of a physician among the other patients, cheerfully and uncomplainingly, he said to himself, "If he is not dis-

couraged, why should I be?" This young man, Frank Ingersoll, taught Trudeau the first great lesson he learned in the conquest of fate by acquiescence, to be content with half a loaf when he could not have the whole.

In the fall of 1888 things began to run more smoothly at the Sanatorium. Trudeau had secured

The Sanatorium in 1888

a capable superintendent in place of the farmer and his family. He had Frank Ingersoll, whom the patients looked upon as a doctor. He was building up his medical practice and getting in touch with more people. From time to time some of his patients and friends gave new cottages or other necessary buildings to the Sanatorium, and a free

bed fund and an endowment fund were started. The seed which had been planted in the form of "The Little Red," the cottage on a rocky fox runway in the Adirondacks, was now firmly rooted and growing rapidly.

The patients in those days were pioneers as well as the doctor whom they knew as the beloved physician. They came sick and depressed, dazed by the knowledge that they were stricken with a dread disease. They found themselves in "new and unfamiliar surroundings, in a place as cold in winter as Siberia and as unreal as a dream." The cottages were heated with stoves, and the water for the morning ablutions was placed in small jugs on the stoves to warm. In intensely cold weather the water froze and the patients had to break the ice in the jugs. A patient of the year 1887 wrote a few years ago:

> Time hung heavily, as the village of Saranac Lake had only a few houses, a sawmill, postoffice, and store; so there was no entertainment of any kind. Our daily ride in winter, wrapped in fur coats and with hot bricks at our feet, was almost a dissipation; and the arrival of the stage with the mail and a possible express package was excitement enough to cause a run of fever. The childish amusements we indulged in would make a 1924 patient smile — splitting birch bark, stripping balsam, sliding and coasting, gathering spruce gum, and in the spring gathering the most beautiful mountain violets, picking wild strawberries, and later marvelous blueberries.

The long, boot-covered legs with the purposeful stride that were Dr. Trudeau's were an inspiration to a discouraged patient. His short jacket and sealskin cap were picturesque accessories of a man destined to be an outstanding figure in the world's work. Boyishly happy when things were going to suit him, he radiated happiness in the very way he would throw off that sealskin cap and laugh.

The patients quickly caught the spirit of the place. Many of them looked back in later years to their experience at the Sanatorium as a " mine of

Patients in 1886 out for the Daily Ride

wistful memories." There, instead of being depressed by constant contact with fellow consumptives, the patients learned to consider themselves as " brothers and sisters of the same infirm flesh."

In reading the reminiscences of patients of the early days, one is reminded of a boarding school — a school of many hardships, to be sure, but one in

which the students were learning that hardest lesson of all, gallantry in the face of disaster. It was no unusual thing to hear coming from a piazza " the sound of a banjo, a Negro melody, and then hearty peals of laughter." There were taffy pulls and oyster stews and sugaring parties at Farmer Smith's. There were typical boarding-school escapades. And there was work for them all. It has been said that " few institutions have such a record of service unpaid or only nominally paid as the Trudeau Sanatorium." The rate was only five dollars a week. Trudeau never charged for his services, and the patients showed their gratitude by willingly volunteering to help in any way possible.

Moving about among them all were the " long, boot-covered legs " of the doctor. His manner with his patients is said to have done more than medicine in ninety percent of his cases. His enthusiasm over a patient who responded well to his treatment was a delight to see. He used little medication. " Open the window, go to bed, and keep your nerve " was his favorite prescription.

The fame of Saranac Lake as a health resort, and of Trudeau as a physician, had spread even in those days of struggle in the late eighties. In 1887 a whisper of this fame reached the ears of a Scotchman who had come to America seeking

health in a complete change of climate and mode of living. Three books, *Treasure Island, Kidnapped,* and *The Strange Case of Dr. Jekyll and Mr. Hyde,* had made the name of this Scotchman, Robert Louis Stevenson, familiar to multitudes of people

Patients on a Bird-study Walk

in both England and America. He had thought first of going to Colorado, but he felt that he could not risk the long railway journey. He determined instead to try a season at Saranac Lake, of which he had lately heard as a "place of cure." He and his mother and his young stepson, Lloyd Osbourne, arrived at Saranac Lake on October 3, 1887.

Stevenson rented a house belonging to Andrew Baker, who had once run the place as a hotel. It was, in Stevenson's words, " a decent house on a hilltop in the eye of many winds. It has," said he, " a sight of a stream turning a corner in the valley — bless the face of running water! " On one hand

A Stream in the Adirondacks

was a hill which reminded him of a hill in Scotland, except for the lack of heather, and on the other hand " the beginnings and skirts of the village play hide and seek among the hills." Stevenson believed that Saranac Lake would do well for him, although it seemed to him to be " primitive, cold, and unsettled."

He was Trudeau's patient, but as he was not really ill the doctor had few professional calls to

make on him. The charm of Stevenson's conversation, however, drew the latter time and again to the Baker cottage. There, before the great fireplace in the living room, the beloved writer and the beloved physician had many a good talk together.

Of course all the visitors in Saranac Lake were anxious to meet Stevenson. So numerous were his callers that to get any work done at all he was obliged to set a day for receiving visitors. On Stevenson's first Saturday "at home" Trudeau and some friends went to call at the Baker cottage. This is what happened:

When we knocked at the front door a voice from within called out, "You cannot come in this way; the wood is up against the door. Go around by the kitchen." So we all filed in through the kitchen to the little sitting room with the big fireplace, where Mr. Stevenson received us. After a while Mr. Osbourne asked the ladies if they would have a cup of tea, and as they assented he departed toward the kitchen. Soon he returned with a broad smile on his face: "I am sorry, but you cannot have any tea; the cook scouts the idea!" And we didn't have any.

We had a very pleasant call, however, and I remained after the others to have a little professional talk with Mr. Stevenson. The visitors all left but one enthusiastic lady, who harassed Stevenson with all sorts of questions; but finally he escorted her to the door and bowed her out. I noticed he shut the door rather forcibly, and then he strode up to me, put his face very near mine, and said with much emphasis, "Trudeau,

it is not the great unwashed whom I dread; it is the great washed!"

On many subjects Trudeau and Stevenson did not agree. Trudeau's whole life work was bound up in the study of facts. Stevenson, on the other hand, ignored as much as possible the unpleasant facts of life and lived in a world of the imagination where evil was merely the stuff of which he fashioned his villains — Long John Silver, Old Pew, the Master of Ballantrae, and the rest of them. Stevenson knew all about the human villainy which he depicted in his books, but villainy in a test tube was another matter. After he had written his beautiful essay, *The Lantern-Bearers,* he was persuaded to visit the laboratory where Trudeau was shining *his* lantern into the dark corners of disease. Stevenson went unwillingly, and when Trudeau got him there he showed him a little scum in a test tube, saying, "This is the cause of more human suffering than anything else in the world. We can produce tuberculosis in the guinea pig with it; and if we could learn to cure tuberculosis in the guinea pig, this great burden of human suffering might be lifted from the world." The little scum, the visible villainy in the test tube, was too much for Stevenson. He bolted from the laboratory with the words, "Trudeau, your light may be very

bright to you, but to me it smells of oil like the devil."

Trudeau says, "He could not, as I could, look over and beyond these painful associations with which I lived in daily contact at the Sanatorium and the Laboratory, and see, as I did in my ideals, the glorious hope of future relief to humanity from sickness, suffering, and death which lay in the study of disease at the bedside, and of infection and germs and sick animals in the Laboratory. This was the light which was so bright to me that I never noticed the smell of oil which overcame Stevenson."

Years later Clayton Hamilton, who was writing a book about Stevenson, went to Saranac Lake to ask Trudeau about the visit of the Scot. He says, "I had come to ask of R. L. S., and remained to admire this hero of innumerable unnoted battles — this maker of a City of the Sick, who, because of him, look more hopefully on each successive rising sun. . . . And the best of our tricky achievements in setting words together dwindle in my mind to indistinction beside the labors and spirit of this man."

Stevenson's letters, written from his "wind-beleaguered hill-top hatbox of a house," give very good pictures of the life at Saranac Lake when the

town was little more than a clearing in the wilderness. In a letter dated December, 1887, he wrote:

> You should hear the cows butt against the walls in the early morning while they feed; you should also see our back log when the thermometer goes (as it does go) away — away below zero, till it can be seen no more by the eye of man — not the thermometer, which is still perfectly visible, but the mercury, which curls up into the bulb like a hibernating bear; you should also see the lad who "does chores" for us, with his red stockings and his thirteen-year-old face, and his highly manly tramp into the room; and his two alternative answers to all questions about the weather: either "Cold" or, with a really lyrical movement of the voice, "*Lovely* — raining!"

Stevenson detested the climate, but he had to admit that it was doing him good. "The place is very bleak and wintry," he wrote, "but is a place where men eat and where the cattarh, catarrh (cattarrh, or cattarrhh) appears to be unknown. I walk in my verandy in the snaw, sir, looking down over one of those dabbled wintry landscapes that are (to be frank) so chilly to the human bosom, and up at a gray, English — nay, *mehercle,* Scottish — heaven; and I think it pretty bleak; and the wind swoops at me round the corner, like a lion, and fluffs the snow in my face; and I could aspire to be elsewhere; but yet I do not catch cold, and yet, when I come in, I eat."

Stevenson called the climate "bleak, blackguard,

beggarly." Of it he could say no good, except that it suited him "and some others of the same or similar persuasions whom (by all rights) it ought to kill." But in the spring of 1888, when he was about ready to leave, he paid the "blackguard climate" the compliment of saying, "I have passed a better winter than for years."

When Stevenson left Saranac Lake to take that journey to the South Sea Islands whence he never returned, he sent Trudeau a beautiful set of his works, especially bound. In each book he had written in his own hand a verse dedicating the volume to some member of the Trudeau family. Not even the family dog, Nig, was forgotten; he, too, had a book and a verse all to himself:

> Greeting to all your household, small and big,
> In this one instance, not forgetting — Nig!

CHAPTER VIII

BUSY YEARS AT SARANAC

IN 1887 another boy was born to Dr. and Mrs. Trudeau. Ned and Chatte, who as little children had spent that first adventurous winter in the Adirondacks with their father and mother, were then well grown. In the year that her little brother, Francis, was born, Chatte was sent to school in New York City. She was then "a strong, athletic girl with a vigorous body and eyes black as coal."

She was not very happy at school and at Easter her father sent for her to come home so that he might "take a look at her." When she stepped from the train, Trudeau was shocked at her appearance. His strong, rosy-cheeked daughter had become pale and listless. Trudeau guessed the terrible truth at once. He knew that it was the old, old story — his daughter had tuberculosis. With a heavy heart he drove Chatte home. When the family sat down to dinner, he went to his daughter's room and found her handkerchief. At the earliest possible moment he took this to his laboratory where he discovered on it, as he had feared, the

bacilli of tuberculosis. He told his wife at once — his courageous wife, who had followed her husband into the wilderness without a murmur.

Through three long years the two, bravely but helplessly, watched their daughter's life fade away

Ned and Chatte Trudeau Tobogganing with Their Friends

under the relentless attacks of an enemy against which Trudeau was battling daily in his own body and in the bodies of those who had entrusted themselves to his care. Chatte died in the early spring of 1893. As she was carried through heavy snow-

CHATTE TRUDEAU AT THE AGE OF FOURTEEN

drifts to rest in the churchyard of the little log church, Saint John's in the Wilderness, which Trudeau loved, the doctor thought of that journey through the snow when Chatte was brought in her

nurse's arms to Paul Smith's. Now she was being carried " through the same deep drifts, to the same place, to sleep the ' long sleep ' by the little log church."

During these years so full of sadness to Trudeau and his wife, the work at the Sanatorium was growing rapidly. Several new cottages were built, an infirmary was opened, and a resident physician was secured. In 1892 Trudeau received an unexpected helper. In December of that year a young physician who was to mean a great deal to Trudeau, to his work, and to the world at large, rang the doctor's doorbell. He told Trudeau that his name was Edward R. Baldwin. When he was asked why he thought he had tuberculosis, he replied that he had used his microscope and knew it. This answer won Trudeau's instant interest in the young man. At last Koch's great discovery was beginning to bring practical results.

In the eighties and nineties many persons who had tuberculosis did not know it until their cases were far advanced. Either Koch's work was disregarded or else the facilities for microscopical examination of the sputum did not exist. Already the growing fame of the Sanatorium had drawn an army of advanced cases to Saranac Lake to add to the problems of the overworked " Master of Sara-

nac." Now on Trudeau's doorstep stood a young man, one of the van of those who were to secure an early diagnosis through the use of the microscope.

St. John's in the Wilderness

There was no room at the Sanatorium for Baldwin. Even as early in its history as this it had achieved a waiting list. Baldwin, therefore, boarded in the village until a place could be made

for him. The next day Trudeau invited him to the laboratory and the two were soon deep in the fascinating science of bacteriology. At last Trudeau had a companion after his own heart. At first Trudeau taught him, but later Baldwin taught his master the latest advances in a science in which he became an acknowledged authority. In the end Trudeau turned the laboratory over to Baldwin entirely.

With the example of Koch before them, the Germans were particularly active in research in tuberculosis. As Trudeau could not read German, much of the literature on the subject was closed to him. With the coming of Baldwin, however, Trudeau kept in touch with scientific research in Germany, for the young doctor could read German. With a bundle of literature under his arm, Baldwin often came to Trudeau's study in the evening. He read to Trudeau what was happening in Germany, and Trudeau in turn told the younger man what was going on in France in the study of tuberculosis.

When Trudeau opened his Sanatorium, virtually no institution in America had ever tried to cure tuberculosis. At the most, hospitals that received consumptives did so with the aim of giving the patients a comfortable place in which to pass their last days. In the popular mind no consumptive

went to a hospital until his case was so far advanced that he could no longer care for himself.

From the first Trudeau felt that this deeply ingrained notion was all wrong. He had set out to *cure* people with tuberculosis, not to make their last days easy. To do this he saw that it was necessary, first, to secure an early diagnosis and, second, to limit admission to the Sanatorium, as far as possible, to those whose cases were favorable. One of the reasons for his enthusiasm over Koch's discovery of the tubercle bacillus was his instant recognition of its value in securing an early diagnosis. To a young woman who had been sent to Saranac Lake by her physician without "proper time for consideration," Trudeau, walking up and down the room and rubbing his hands gleefully, said, "That's where he was *smart! Smart! Smart! He was* smart!"

"Sight the enemy in time," was Trudeau's plea. "Use the microscope as a general uses his spyglass on the field of battle. Detect the tubercle bacillus before it has a chance to make serious inroads. Then come to me and we shall see what rest and fresh air and good food can do."

To carry out his burning desire to make cures, to prove that with an early diagnosis a cure is possible, Trudeau from the first refused whenever

possible to take acute and far-advanced cases. This brought him a great deal of criticism from physicians who thought that Trudeau was trying to build up a reputation for himself by treating only favorable cases. This thought never entered Trudeau's head. He belonged to the very highest order of physicians, an order without organization, without head, without initiation fees, often without recognition. He and the physicians who were later associated with him were of that band who never use the science of medicine for themselves, but give themselves to the advancement of medicine. Yet it is true that, without seeking it, Trudeau had by 1890 a remarkable reputation. In the words of Dr. Allen K. Krause:

> Here was a man who stood without a close rival in his field, who, if he chose, could have commanded one of the largest practices and one of the greatest professional incomes in medicine. He was not given to discussing medical fees or to wasting time speculating on how much money his brother doctors might be making; but he once said to me, " I never made more than seven thousand a year in practice, and I didn't do that in more than two or three years." It is true that from youth Trudeau enjoyed an inherited income, and was never, therefore, in danger of poverty. Nevertheless, this was at no time more than enough for the simplest living and, in his later life, when more frequent and prolonged illnesses took him out of practice, it became quite insufficient for his needs. The point is that few men, even with his independent income, would have

resisted the temptation to " cash in " on the remarkable reputation which he had achieved by 1890 and before, or passed by the opportunity to accumulate a fortune that was his for the asking.

It upset Trudeau terribly to have any one suggest that he was running the Sanatorium to make money. Its very founding had been inspired by the thought of giving poor tuberculosis invalids the benefit of the Adirondack climate and the chance of trying the new methods of treatment. For twenty-three years the rate at the Sanatorium was five dollars a week; then, as the cost of maintenance and equipment rose, it was increased to seven dollars, to eight dollars, to ten dollars, and finally to fifteen dollars a week. Once Stephen Chalmers, who wrote the story about Trudeau called *The Beloved Physician,* was asked: " What sort of man is Trudeau? Is he what so many say he is, or just a clever doctor who has made a fortune out of the Adirondacks? "

" In a rash moment," says Chalmers, " I referred this to the doctor himself. I do not know that he was ever more upset. He promptly sent me this:

I am always puzzled to know why people cannot understand the spirit of the Sanatorium work. To give a patient for $7 what costs $12 or $12.50, and to have a deficit of $27,000 on

running expenses for the year can hardly be a business way to make a man rich! Perhaps it is the imposing appearance of my *equipage* which makes the world think me a coiner of money!!

The " equipage " was a country doctor's buggy drawn by a shaggy mare called Kitty. The townspeople called this mare " the old plush horse." When the ancient mare was on her last legs, some one gave the doctor a fine carriage and a high-stepping horse. Trudeau, when he saw this outfit for the first time, said worriedly, " I can't ride in that thing. People will think I don't need money for my Sanatorium." He accepted the gift finally, however, in order that old Kitty might spend her last days in peace.

In spite of criticism Trudeau persisted in selecting from the many applicants for admission to the Sanatorium only such cases as seemed likely to respond favorably to treatment. But refusing admission was always a sore trial to him. The hardest thing he had to do was to shake his head to an applicant after an examination. He made up for his refusals in every way that he possibly could. He helped the rejected applicants to find boarding places in the village. If necessary, he gave them financial aid. He visited them as often as he could, without making any charge.

As Trudeau's reputation grew, he was deluged with patients who came from all parts of the world. Until Dr. Baldwin and some of his other associates became well known, Trudeau was the only specialist in Saranac Lake. Almost every train brought

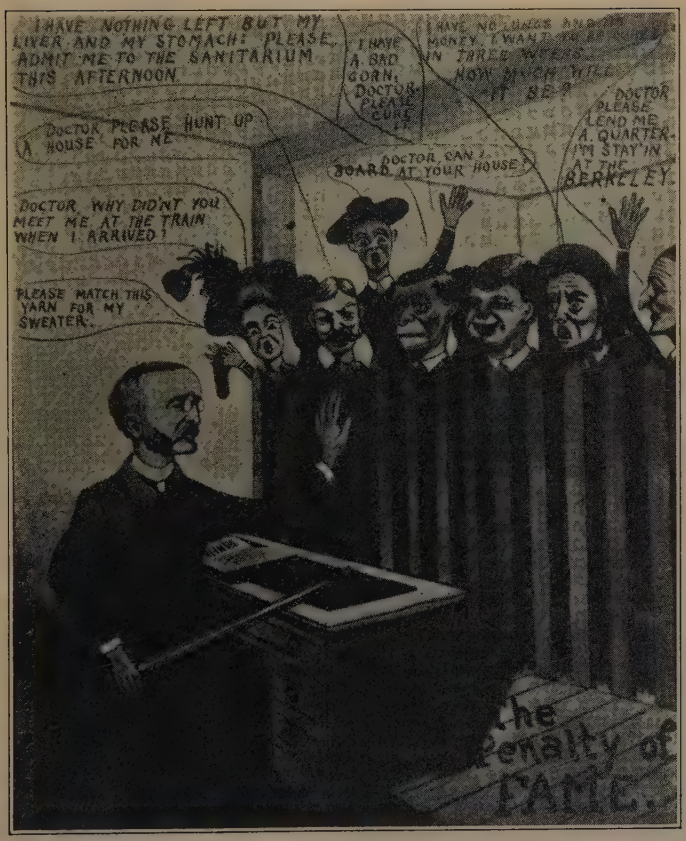
Dr. Baldwin Reading to Dr. Trudeau in the Latter's Study

patients, rich or poor, who wished to consult him or to enter the Sanatorium. In the summer, when he carried on a large practice at Paul Smith's, he drove over to his office in Saranac Lake twice a week. On arrival he found the waiting room, the porch, even the lawn, crowded with patients. "Rich

and poor, young and old," says Trudeau, " were in that crowd, and by seven o'clock I usually managed to see all of them and give them some sort of advice as to their cases and their mode of life. I am sure that toward the end of those long hours I must have slighted my work, for I could hardly keep my mind on the patients' cases, and I was numb with mental and physical exhaustion."

Hard as this work was, Trudeau loved it, because he loved and understood human beings. He accomplished his work by reason of his humanity. He gained many odd sidelights on " human nature when under the strain of disease, and often of poverty as well." He says, " I remember once I was examining a man, when, after he had removed his clothes, I found his right side painted nearly black with iodine, while only in the left lung could I find signs of disease. I asked him why he had painted his right side when the trouble was on the left. His only answer was a smile and, ' Well, I wanted to see whether you would know! ' "

Often patients came to Trudeau broken in spirit and in health, hoping against hope that he might perform the miracle which would make them well. If the disease was far advanced, he could only bid them live and die courageously like gladiators, with their swords in their hands. If he could help them,


I HAVE NOTHING LEFT BUT MY LIVER AND MY STOMACH: PLEASE ADMIT ME TO THE SANITARIUM THIS AFTERNOON
I HAVE A BAD CORN, DOCTOR, PLEASE CURE IT.
DOCTOR PLEASE HUNT UP A HOUSE FOR ME
DOCTOR, CAN I BOARD AT YOUR HOUSE?
DOCTOR PLEASE LEND ME A QUARTER. I'M STAYIN AT THE BERKELEY.
DOCTOR WHY DIDN'T YOU MEET ME AT THE TRAIN WHEN I ARRIVED?
PLEASE MATCH THIS YARN FOR MY SWEATER.

A Cartoon of Dr. Trudeau Drawn by One of His Patients

he sent them forth again into the world — gladiators with new blades in their swords. Often very poor patients came to him, hoping that this famous specialist would not charge them more than they

could scrape together. Stephen Chalmers tells this story:

A new patient, admitted to Trudeau's presence, said, "Doctor — before you do anything — I haven't much money. How — how much will it cost?"

"Much depends on how much you've got and how bad you are," said Trudeau, himself assisting to unbutton the patient's collar. "You see," he went on disarmingly, "if you are not very bad, it will cost you quite a lot, so that I can use the money for those who are. If you are a really bad case — well. Say 'ninety-nine,' please, and keep on saying it while I listen to your chest."

The doctor's face became grave as he noted the vibrations caused by the reiterated "nine-nine-nine." When the examination was over the patient asked, "How bad — I mean — how much will it be, doctor?"

For reply Trudeau — and one can comprehend the great sympathy that flooded the beloved physician's face — handed the patient a ten-dollar bill.

"I owe you — that much — at least," he said.

One can imagine the rest — that speech which he employed so often and to so many:

"Don't take it too seriously, but just seriously enough. I am no better off in health than you are, and both you and I, old man, will be a great deal worse before we're better."

CHAPTER IX

THE PHOENIX TRICK

IN the fall of 1893 Trudeau and his family went to New York for a visit. Shortly after their arrival Trudeau became very ill. One morning in the first week of his illness word was sent to his room that a gentleman wished to see Mrs. Trudeau in the parlor. This caller was Dr. Loomis, who had come with the bad news that the Trudeau home in Saranac Lake had been burned to the ground. Dr. Baldwin had wired that the little kerosene lamp in the laboratory had set fire to the house in the night and that very little had been saved.

Dr. Loomis thought that Trudeau was too ill to hear this news, but Mrs. Trudeau said that she had never kept anything from her husband and that Dr. Loomis must come up and tell him of the disaster at once. This Dr. Loomis did, and Trudeau, who, from the long faces of his wife and his doctor, had feared that something had happened to his son Ned at Yale College, said, "I am so glad that is all. We can get another house."

Letters and telegrams of sympathy came pouring in, but of them all the note sent by Trudeau's good friend, Dr. William Osler, cheered him the most. This is what it said:

DEAR TRUDEAU:

I am sorry to hear of your misfortune, but take my word for it, there is nothing like a fire to make a man do the Phoenix trick.

THE TEMPORARY LABORATORY USED BY TRUDEAU AFTER THE FIRE

According to legend the Phoenix, after a long life, loads its wings with spices and flies to the temple of the sun, where it is burned to ashes on the altar. From these ashes springs a young Phoenix, who, on the third day, when its wings are grown, flies away.

Osler's prophecy came true. From the ashes of the little homemade laboratory in Trudeau's house a new fireproof laboratory sprang. As Trudeau says, the ink on Dr. Osler's letter "had scarcely had time to dry" when his friend, George C. Cooper, said to him: "I want you to begin to plan

Interior of the New Laboratory

a good stone and steel laboratory; one that will never burn up. Plan it just as you want it, complete, and I will be glad to pay for it and give it to you personally."

The new laboratory was finished in 1894. There were no opening ceremonies. Without fuss, Trudeau and Baldwin moved their apparatus to the

new quarters from their little temporary laboratory in a shed and went on with their work. This laboratory was the first one in this country devoted solely to the study of tuberculosis. From it have come many original contributions to our knowledge of tuberculosis made by Dr. Trudeau and his associates. Since the laboratory is used for research only, no laboratory product has ever been sold for private use. Serums and cultures are supplied free to those who ask for them for purely scientific purposes.

The laboratory also inspired the formation of a medical society for the discussion of new ideas and practices in scientific medicine. The doors of the laboratory have always been open to physicians, and this has led to a keen interest in scientific medicine among the numerous medical men of the community. Physicians who have left Saranac Lake to practice elsewhere have carried with them the spirit of this strong young Phoenix which rose from the ashes of the old.

Trudeau's illness in New York during the fall of 1893 continued for a long time. He was not able to return to Saranac Lake until late in December. One evening before Christmas, when he was feeling particularly ill and discouraged, a knock sounded on his door. In came Dr. Hodenpyl, who had

taught him how to stain the tubercle bacillus. He carried a large mahoghany box in his arms. "It is a microscope," said Dr. Hodenpyl, much embarrassed. He explained that the boys at the laboratory had heard of the burning of Trudeau's home. They knew that his beloved microscope was gone and that the first thing he would need would be a new one. Trudeau opened the case with trembling hands and found an instrument of the very finest make. He also found this note from Dr. Prudden, whom he had first met in the laboratory of the College of Physicians and Surgeons when he was on the trail of the tubercle bacillus:

> My Dear Doctor Trudeau:
>
> We men at the laboratory want to make you a Christmas present, and we are so eager in wanting to that we cannot wait till the proper time.
>
> I don't think we have decided whether we want to do this most because we appreciate the good work you are always doing, in our line and others, or because you have had more pluck than anybody we know, or because you have been so often helpful to us and made us always glad to have you here, or because — well, the fact is, old fellow, we like you and want you to know it and so here we are in a row, bowing our early Christmas greeting.

Trudeau was so overcome that he was unable either to speak or to write his thanks.

On the return to Saranac Lake in late December,

Trudeau occupied a house belonging to George Cooper. His own new house was completed in the fall of 1894, and there Trudeau lived until the end of his life. This house is now used as an office by his son Francis and as a museum where photo-

Dr. and Mrs. Trudeau and Their Horse, Old Kit. Their New Home is in the Background

graphs and other treasures relating to Trudeau's life and work are kept.

In the years 1894 to 1904 the Sanatorium grew steadily. Nine new cottages were built, and with the experience gained as to the requirements of these little buildings they were made much more

comfortable and more suited to the open-air methods of treatment than the first small cheap structures. The cottages for patients at the Sanatorium were now snug little homes equipped with electricity, hot-water heat, open fireplaces, bathrooms, and outdoor sleeping porches.

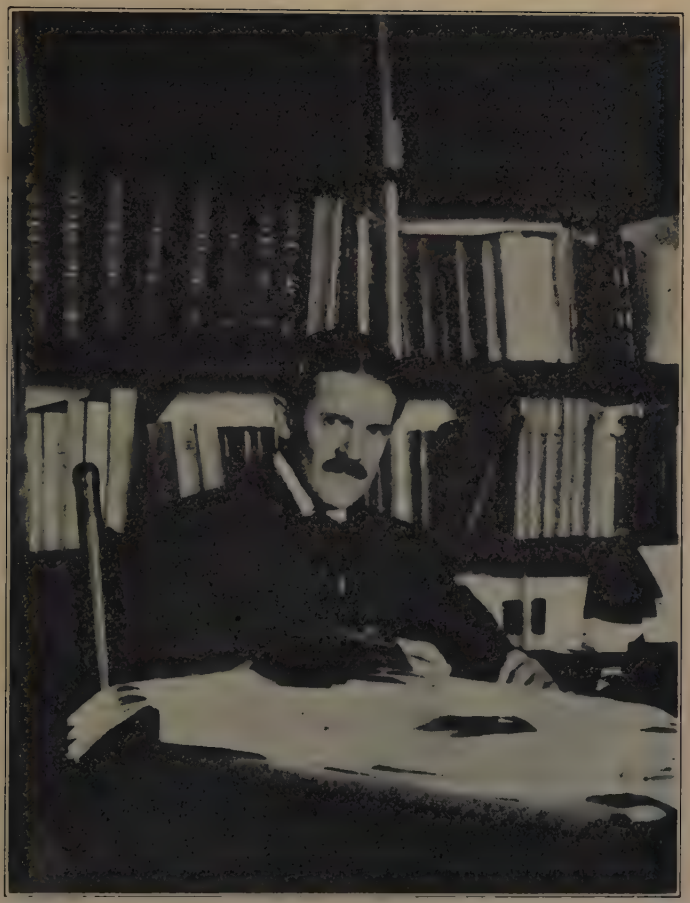
PATIENTS' COTTAGES IN 1888

The old wooden main building, which had started its career with one wing, was torn down in 1896, and a large stone and shingle structure was put up in its place. A new infirmary with a beautiful view of the mountains for those patients who must stay in bed was given by Otis H. Childs as a memorial to

his wife, and Mrs. Frederick H. Baker gave a little stone chapel in memory of her son. Another friend, Samuel Inslee, who asked Trudeau, after seeing the Sanatorium, "What is there that you want that nobody else will give you?" gave the money for a laundry. For, said Trudeau, "We have no laundry, and certainly nobody wants to give me a laundry." The next year, after asking the same question, Mr. Inslee gave Trudeau the unromantic, but useful, gift of water works and fire protection.

The endowment fund kept pace with the development of the plant. By 1904 it had reached the sum of $299,083.65. "Thus," says Trudeau with great satisfaction, "in twenty years the Sanatorium was built and paid for, the large deficit on running expenses was met each year — a deficit amounting at times to as much as twenty-nine thousand dollars in one year — and an endowment fund of nearly three hundred thousand dollars accumulated."

In 1901, Dr. Lawrason Brown became resident physician at the Sanatorium. He showed as much ability for the administrative end of the work as Dr. Baldwin had shown for work in the laboratory. Trudeau had been so busy keeping the Sanatorium afloat and in demonstrating the great truths for which it stood that he had had little time for ad-



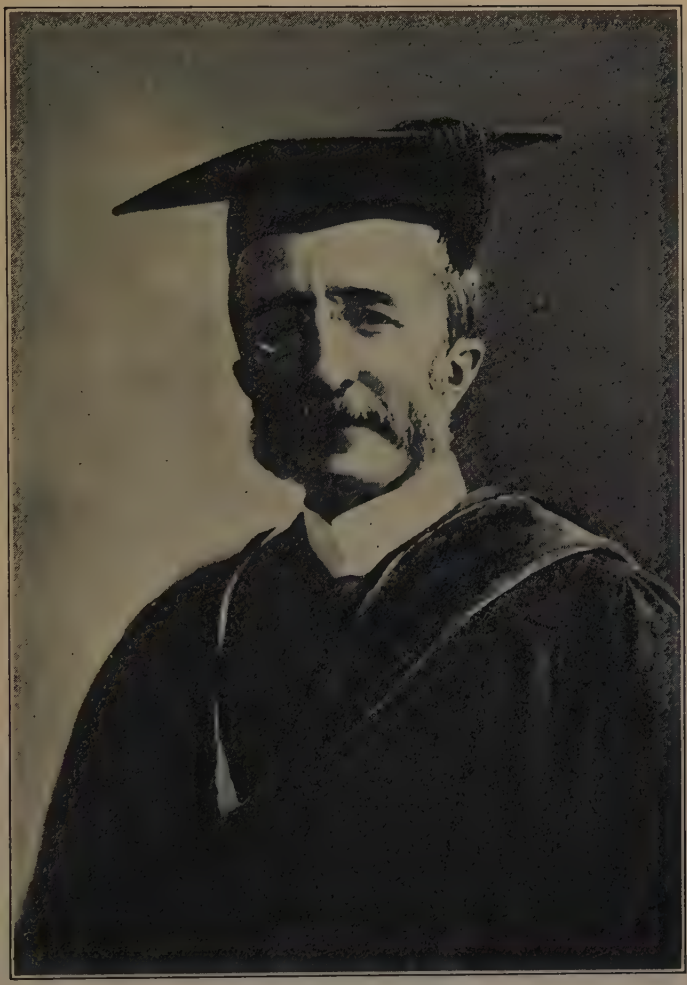
Dr. Brown in His Study

ministration. When Dr. Brown became resident physician, the effectiveness of the Sanatorium treatment had become established; but, in Trudeau's own words, "the methods were crude, the discipline imperfect, and the records incomplete."

The medical work done had been meager. The patients were examined every month or two, but few records were kept, since Trudeau relied almost entirely upon his remarkable memory. He also had a habit of giving advice to the patients without mentioning it to the resident physician, and this sometimes complicated matters.

The resident physician had been obliged to eke out his slender income of sixty dollars a month by taking boarders in his cottage. Trudeau now raised the salary for this post to a degree which made it possible for Dr. Brown to give up taking boarders. As time went on, the medical work under Dr. Brown grew to such an extent that both Trudeau and Brown recognized the necessity for a medical building. With characteristic energy Trudeau set about getting it.

He soon had the money for the building promised, but the gentleman who was to give it died suddenly without leaving any record of his intended gift except his spoken word to Trudeau. This was a great disappointment to the doctor, and



Dr. Trudeau in 1899

he spoke of it to one of his good friends in Saranac Lake, a clergyman named Alexis W. Stein. Mr. Stein said, " Doctor, ' Silver and gold have I none,' but such as I have I am going to give you." A few days later Mr. Stein called Trudeau on the telephone and said, " I have a check for twenty-five thousand dollars for you whenever you care to call for it." He had written to one of his old parishioners who had told him to call on her when he needed money for any good cause, and the lady kept her word. It was in this indirect way that the Sanatorium got its beautiful medical building.

Dr. Brown found that the Sanatorium records were extremely meager. He says: " In some instances not even the home address of the patient was noted. In fact, only the most salient and most necessary practical notes were made. This was due in large part to the fact that the institution had always been, on account of financial reasons, understaffed and manned by semi-invalids — ' lame ducks,' as Dr. Trudeau jokingly used to call all of us." Dr. Brown, who was young and full of energy, introduced method into the administration of the Sanatorium. He insisted on accurate medical reports and exhaustive post-discharge records of all patients since the institution started. He also insisted on " simple and efficient rules of discipline

and the thorough instruction of physicians, nurses, and patients."

Soon after Dr. Brown's arrival, Trudeau's health began steadily to fail, and it was with immense relief that he turned over to his resident physician the entire medical department of the Sanatorium.

At about this time another great sorrow came to Dr. and Mrs. Trudeau in the death of their son Ned. This young man was brilliant and full of charm. Like his father, he had decided to be a doctor, and in 1900 was graduated from the College of Physicians and Surgeons. He had just started his medical career in the office of Dr. Walter B. James in New York when he was stricken with pneumonia. Dr. and Mrs. Trudeau hastened to New York in great anxiety. Ned weathered the crisis of the disease and seemed on the road to recovery. One afternoon Trudeau visited his son at the hospital and the two had a happy hour together. On his return to the house in which he was staying, the telephone rang just as the door was opened, and Trudeau was told that his son was dead. In his *Autobiography,* referring to Ned, Trudeau says: "I cannot write about his death. My wife and I passed through days of dazed suffering, which even now it is hard to dwell upon and from which we

have never recovered, for life has never been the same to us since.

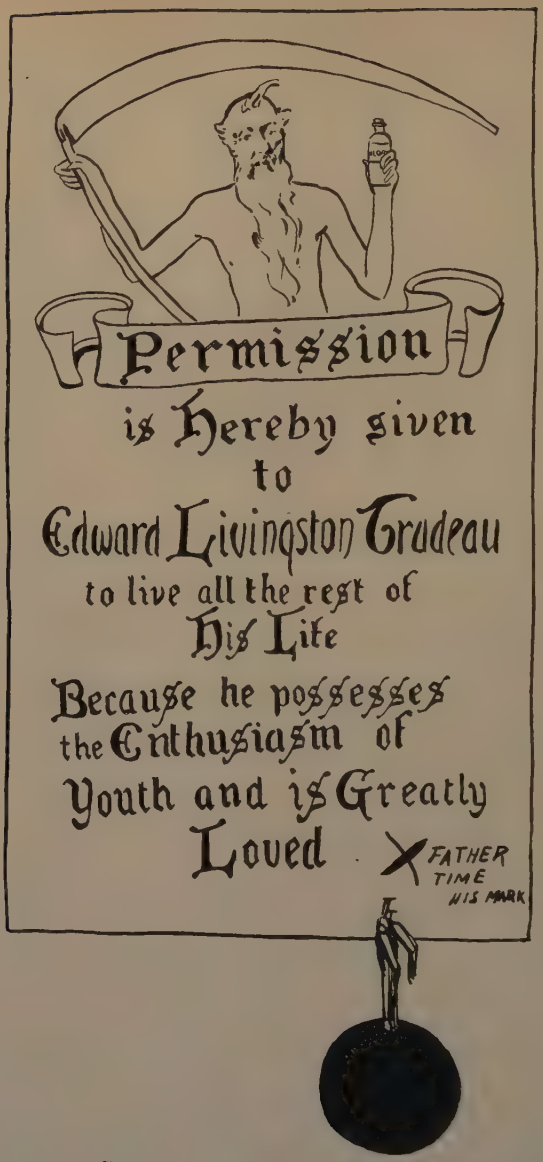
" Through all these terrible, dark days, however, the tender sympathy and love of our friends and his friends shone, and shines even now, like a soft light in the midst of impenetrable gloom."

CHAPTER X

RED-LETTER DAYS

TRUDEAU was fond of chalking up his red-letter days on the calendar of his memory. In the last ten years of his life there were many of these red-letter days. One of them was his sixtieth birthday, which he celebrated on October 5, 1908. The gifts that pleased him most were two red morocco-bound volumes containing seventy papers which represented the scientific studies published by his associates. The knowledge that he had handed on the torch, that his beloved work would not end with his death, that the "Trudeau spirit" would live in Baldwin and Brown and all his other young men, was reward enough for the dark days and the begging years.

At the birthday party a friend, in the disguise of Father Time, with a long white beard and a bottle of chloroform, came to claim Trudeau as having passed the age limit of usefulness. An older man rose to protest, but Father Time announced that he too had almost reached the age limit and that his plea was therefore prejudiced. But when a young



The Diploma Given Trudeau on His Sixtieth Birthday

man begged that Trudeau might be spared to teach and lead young men, Father Time relented and gave Trudeau that famous diploma which granted him permission "to live all the rest of his life, because he possesses the enthusiasm of youth and is greatly loved."

It must certainly have been a red-letter day when this man, who for years had been a "backwoods doctor," was elected president of the Congress of American Physicians and Surgeons. He delivered the presidential address in Washington, in May, 1910. This address on "Optimism in Medicine" has become famous. It explains that statement of Dr. Krause in which he says: "In medicine Trudeau will achieve not only lasting fame, but will typify, will stand as the great exemplar of, what after all is the grandest aspect of the medical profession — of what, no matter how it may on occasion be beclouded and obscured, is its chief glory. His name will be invoked to put before young doctors and old the pattern, the model, of the abounding humanity of medicine."

On that May day in Washington the scientist, the builder, the medical practitioner in Trudeau had been left at home in Saranac Lake. It was the beloved physician who begged the physicians of America to work with their hearts as well as with

their heads. It was the man who had often traveled forty miles through the snow to tell a sick guide to "buck up," who had many a time pushed his boat up St. Regis Lake to spend the night with a stricken millionaire, who had started a great sanatorium with two factory girls. Here are some of the things that Trudeau said about optimism in his address:

> Optimism is a mixture of faith and imagination, and from it springs the vision which leads one from the beaten paths, urges him to effort when obstacles block the way, and carries him finally to achievement, where pessimism can see only failure ahead. Optimism means energy, hardships, and achievement; pessimism means apathy, ease, and inaction. Optimism may and often does point to a road that is hard to travel, or to one that leads nowhere; but pessimism points to no road at all. . . .
>
> To the practicing physician and surgeon optimism is even more necessary than to the scientist, for, besides moulding the doctor's character and guiding him in his decisions as to the case, his optimism is at once reflected to the patient and influences his condition accordingly. How great this influence may be we are learning more and more to appreciate. In his hour of need the patient has no means of judging the physician's intellectual attainments; it is the faith that radiates from the doctor's personality that is helpful to him. Any encouragement that emanates from the physician will help keep up the patient's courage and carry him through long days of illness and suffering to recovery; and where recovery is impossible, if the doctor's optimism — that is, his faith — is of the kind that extends to the future, not only here but hereafter, it may dispel for the patient much of the darkness and despair

which brood over the end of life, and perhaps even illume for him that vast forever otherwise so shrouded in impenetrable gloom. . . .

Optimism is the one thing that is within the reach of us all, no matter how meager our intellectual equipment, how unpromising our outlook at the start, or how obscure and limited our careers may be. It was about my only asset when I built my first little Sanatorium cottage on a remote hillside in an uninhabited and inaccessible region. Viewed from the pessimist's standpoint, that little cottage as an instrument of any importance in the warfare against tuberculosis must have appeared as a most absurd and monumental folly. Optimism made me indifferent to neglect and opposition and blind to obstacles of all kinds during the long years of struggle before the value of sanatorium treatment became generally recognized. It enabled me to undertake the culture of the tubercle bacillus and delve in the complex problems of infection and artificial immunization, though I had no knowledge whatever of bacteriology, no laboratory, no apparatus or books. It has steadily upheld my faith in the possibility of ultimately attaining to an immunizing treatment for tuberculosis, in spite of many discouragements and years of fruitless work. . . .

In a long life which has been lived daily in contact with patients beyond the reach of human skill, who through months and even years of hopeless illness have looked to me for help, I have indeed had need of all the optimism I could cling to. It has ever been a precious asset to me, and I hope to those about me as well, and has never entirely failed me.

Let us not, therefore, quench the faith, nor turn from the vision which, whether we own it or not, we carry, as Stevenson's lantern-bearers their lanterns, hidden from the outer world; and, thus inspired, many will reach the goal; and if for most of us our achievements must fall short of our ideals, if

when age and infirmity overtake us " we come not within sight of the castle of our dreams," nevertheless, all will be well with us; for, as Stevenson tells us rightly, " to travel hopefully is better than to arrive, and the true success is in labor."

Because Trudeau was " extraordinarily human " he did what he did: " created and developed his sanatorium, acquired resources for scientific work, gathered around him a remarkable body of young physicians, profoundly impressed men and women of every class and walk of life." But because he was human, he was not perfect. Any picture of Trudeau which presents him as a patient and heroic sufferer, proof against the bullets of fate, would be untrue. Those who knew him best are unanimous in saying that he was a difficult patient. A visitor to his sickroom was often placed in a quandary. If the visitor sympathized with him, Trudeau was apt to think that he was worse off than he actually was. If the visitor told him that he looked pretty well, his face would fall because he thought that his visitor did not appreciate the intensity of his suffering. But for those who knew him there was always a way out of the difficulty. They had only to mention something in which the doctor was interested, and back would come the sparkle to his eyes and the light to his face. All his misery was then forgotten.

TRUDEAU IN HUNTING COSTUME

Trudeau himself never tried to hide his frailties, just as he never tried to parade his good qualities. He was what he was and made the best of it. For, said he, "if you go down to the depths at times,

you have many glimpses of higher things that people of more even temperament never get." Because he himself had seen "the world grown dark" many a time, because he himself had explored the shadows, he knew what his patients had to contend with and how best to coax them up into the sunlight. It has been said that Trudeau "had no peer in reconciling a patient to the more unpleasant features of illness."

And so we see him as one of his best friends, Dr. Krause, saw him, "without a false pose or a misleading gesture; a man through and through, not perfect, but with as few disagreeable traits as are to be found in any individuality. And when a man of his kind is dowered with an overabundance of talents and uses these for the other fellow, the result is certain — the memory and regard of mankind long after he has passed from the scene."

On February 15, 1910, the Trudeau Sanatorium celebrated the twenty-fifth anniversary of its founding. This was another one of the red-letter days of Trudeau's life. Three or four hundred friends, patients, and former patients came in person to greet the beloved physician. One thousand others, 'graduates' of the Sanatorium who had recovered their health there, sent him cards expressing their gratitude. During the celebration

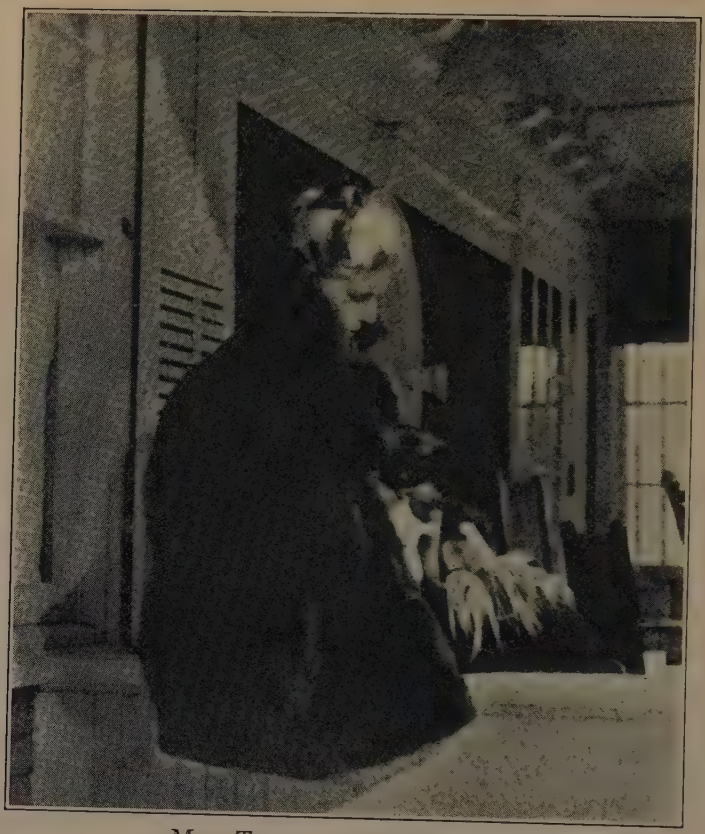
Trudeau was reminded of the contrast between the year 1885 and the year just ended. In 1885, two factory girls were the only tuberculous patients receiving sanatorium treatment in the United States. Twenty-five years later, over 117,000 patients had received sanatorium care in one year (1909) in this country, and there were in existence 386 tuberculosis sanatoria and hospitals — " all the direct result of one unconquerable soul invalided in the prime of life into the Adirondack Mountains."

Trudeau walked upon the stage at the public meeting leading by the hand Fitz Hallock and his friend D. W. Riddle, who had helped him with the very first buildings. He introduced himself and his escorts as " the three pioneers in the antituberculosis work in Saranac Lake." Then he said:

How can I find words to express suitably my feelings on such an occasion as this? Twenty-five years ago I dreamed a dream, and, lo, it has come true, and we are here today to commemorate the realization of this dream.

When I came to the Adirondacks thirty-five years ago the outlook for my accomplishing anything in life seemed to be hopeless indeed. I was an exile in a country which was both remote and inaccessible. I had only an indifferent medical education; indifferent as compared with that of today. I had only ordinary intellectual attainments. Now you may ask how it was, in spite of these difficulties, I accomplished what has been done here.

The first asset I had, which carried me through better than



MRS. TRUDEAU WITH HER DOG

anything else, was a good wife — the best wife that any man ever had; and through the long years of discouragement and struggle she has always furnished both inspiration and encouragement. And then I had an unlimited fund of enthusiasm and perseverance, and I had faith; that kind of faith that sees the goal and is blind to the obstacles; faith in myself; faith in

my power to do something, no matter how little, for a good cause; faith in my friends — and that faith has been reflected on me so that they have poured their money into my lap all these years for my work; faith in the future, here and hereafter.

Now that I have come to the end of the road, what more could I ask than to be permitted to stand with you here today and see the realization of my dream; to look into the faces of my friends of the pioneer days, who had faith in an enthusiastic young doctor, and show them that their faith was not misplaced; to stand here and see those who have been connected with this work for so many years — doctors, nurses, and those in the administration department — and who have borne for me the heat and burden of the day, and by their self-sacrificing devotion have made this great work what it is? And what is better than to see all about me those whose lives have been saved and prolonged, and to know that this saving and prolonging of life, because of what we have striven to do here all these years, has reached across the continent and brought hope and life to those who hitherto were hopeless?

"Truly," said Trudeau, in commenting on this celebration in his *Autobiography,* "did any man ever have such a reward for work, the very doing of which was an ample reward!"

For many years physicians, either as patients or as student helpers, had received training in the methods of treating tuberculosis at the Sanatorium. In 1912 a training school for nurses was established. The pupils were young women in whom the sanatorium treatment had arrested the

disease. In this way many well-educated girls could be refitted for a life of independent usefulness without danger to their health. Moreover, patients who have taken the cure for tuberculosis, and who have a natural ability for nursing, make better nurses for tuberculosis cases than some trained nurses without special knowledge of the disease.

DR. AND MRS. TRUDEAU AT THE NURSES' GRADUATION IN 1915

On that red-letter day when Trudeau handed the diplomas to the first graduating class of special tuberculosis nurses, he could not help speaking of those days in which old women and guides had done all the nursing of bedridden patients. And

we may be sure that he could not help thinking of Ruth Collins, who, singlehanded, had for many years done all the nursing in the first little infirmary. It was Miss Collins who had begged Trudeau to let her sleep on the lounge in her sitting room

THE LIVINGSTON MEMORIAL INFIRMARY IN 1924

so that a poor dying man from the village might have her bed. For three months Miss Collins slept on the lounge and cared for the poor fellow, in addition to her other work, until he died. On that day Trudeau said to his wife, "I used to think I tried at times to do my share for the consumptive, but certainly I had never thought of getting out of my bed and room and caring for months for a dying man while I slept on a lounge!" The nurses at Trudeau Sanatorium have a great tradition behind them.

In the last year of his life, Trudeau could gaze upon a scene which must surely have surpassed the most golden visions of the lone young hunter day-dreaming on Pisgah Mountain. Gone forever was the rough pasture strewn with old boulders. Foxes no longer ran down the old runway. Of all that un-

Patients Weaving Baskets on the Porch of a Cottage

broken wilderness of the past, only the beautiful mountains and the face of running water remained. Up to the very gates of the Sanatorium crept the town which in the early days had been represented by a handful of guides' houses and a village store. On the spot where Trudeau had killed a big hare on the very day that he first came to Saranac

Lake, stood the station of the New York Central Railroad.

Standing on the porch of the Medical Building, Trudeau saw realized in substantial brick and stone the picturesque little village of his dream. Grouped about the large Administration Building were the

Interior of the Amusement Pavilion at the Trudeau Sanatorium

patients' cottages, "houses built inside out," where the everlasting foes of tuberculosis — sunlight, fresh air, and rest — were waging war against the enemy. Turning to the south, he saw the comfortable homes in which the heads of departments lived, the stables and barns, and the fireproof laundry. Joyfully he could point to a nurses' home

for the Nurses Training School, an infirmary for bedridden patients, a post office, a brick and marble library, a reception and medical building with offices, laboratory, and X-ray department, a recreation pavilion for amusements and entertainments,

Patients Sewing Books in the Open Air

a workshop building where the patients were taught various handicrafts, and a beautiful stone chapel. All this he saw in 1915, and with a triumphant chuckle he wrote that surely Fitz Hallock must now be reconciled to the spoiling of the fox runway.

Trudeau never lost his love of hunting. In 1899, with the help of his old guide, Fitz Hallock, and a

few other friends, he bought a small hunting place called Little Rapids. For fifteen years Trudeau had this place to " run away to " when he needed rest and change. There with his wife and sons and his old friend Fitz he spent some of the happiest days of his life.

Interior of the Workshop at the Trudeau Sanatorium

As Trudeau's strength failed, Fitz used all sorts of ingenious stratagems to make it possible for the doctor to hunt and fish and yet not realize his growing weakness. Trudeau tried to play his part for old times' sake. He never let Fitz know that he saw through the little devices by which the old guide made hunting as easy as possible for him.

TRUDEAU AT THE SHOOTING BOX IN HIS FAVORITE DEER RUNWAY

At first Fitz noticed that it was becoming harder for the doctor to walk. He therefore cut little paths through the hunting grounds and removed all the brush and fallen logs to make the walking easier. He told Trudeau that the little paths made it pos-

GUIDES CARRYING MRS. TRUDEAU THROUGH THE WOODS

sible to walk with less noise. "The next fall," says Trudeau, "when I came down for my hunt it was late, and the forest floor as usual was covered with dry and crackling leaves, which as a rule make it almost impossible to get up to a deer without

alarming him. As I followed Fitz stealthily, I noticed there were no leaves on the little paths he took me on, so that we made no noise; and when I asked him how this happened, he said that during the week before I came down he had brushed away all the dead leaves from the paths where he was going to take me, so that we could walk quietly and have a better chance for a shot."

At last the time came when Trudeau could walk no more. Then Fitz tied poles to an old rocking-chair and in this the doctor was carried to the old runways in the woods. In the fall of 1913, Trudeau sat for two hours in his rocking-chair by an old lumber road with Fitz behind him. As it grew dark, a deer appeared out of the forest like a ghost. From his seat Trudeau raised his rifle and dropped the deer right in his tracks. Fitz beamed with pleasure and said, " Well, Doctor, you must love to hunt, and you haven't forgotten how to do it yet! " This was Trudeau's last deer.

On November 15, 1915, Trudeau died. As he looked back upon his life that last year he saw the grim foe that had robbed him of his dear ones and had shattered his own life when he was young and strong. But he could say: " And yet the struggle with tuberculosis has brought me experiences and left me recollections which I never could have

known otherwise, and which I would not exchange for the wealth of the Indies! While struggling to save others, it has enabled me to make the best friends a man ever had."

It had done more. To a life vanquished at the beginning it brought victory in the end. Out of the young man stumbling down the steps of Dr.

TRUDEAU WITH HIS LAST DEER

Janeway's office it forged that unconquerable spirit by which Trudeau won to the front rank as a scientist, as a humanitarian, and as a physician.

As a scientist, Trudeau pointed out the importance of the tubercle bacillus as a means of diagnosing the disease. He proved the worthlessness

of the many cures held out as hopes to tuberculosis victims. He demonstrated the possibility of curing tuberculosis by rest, fresh air, good food, and the regulation of the patient's habits by a physician. He proved that the patient's chances of a cure are immeasurably increased by an early diag-

The Library at Trudeau Sanatorium

nosis. Since the pound of cure in the case of tuberculosis is made of the same ingredients as the ounce of prevention, Trudeau rejoiced in the founding of the National Association for the Study and Prevention of Tuberculosis. He was the first president of this association, and the day of its first meeting,

May 18, 1905, was another red-letter day in his life. Then he saw before him that great body of physicians and laymen who had joined forces to spread the gospel of healthy living as the surest way to fight the Great White Plague.

This movement has had a tremendous influence on all public-health work. Its most startling effect is seen in the decrease of tuberculosis in cities. In the past the stronghold of this disease was among city populations. In the nineteenth century the growth of great manufacturing industries, which led to the flocking of people from the country to the cities, favored the increase of tuberculosis by leaps and bounds. But now, although our cities have continued to grow steadily, the number of deaths from tuberculosis in cities is constantly diminishing. The movement to prevent tuberculosis fostered by the National Tuberculosis Association has helped to focus the attention of the people on public health. In our cities we now have strict rules governing water, milk, and food supplies; sanitation and sewerage; home, office, and shop construction; quarantine and disinfection. Wherever we find this care of the public health, we find a healthier people. And it is in healthy people that the tubercle bacillus finds its most unfavorable soil.

It is not public health alone that the antituber-

culosis movement has affected. In our schools boys and girls are now learning that the simple rules of healthy living are the surest means of preventing tuberculosis. They are learning that the tubercle bacillus must struggle for survival. Down through the ages it has come. Hitherto it has been triumphant. But in this long-drawn-out contest we of today have a tremendous advantage. We know what we are fighting and we know how to fight. We are learning not to wait until the bacillus has gained a foothold in our bodies before fighting it. We are learning that it is foolish to lock the barn door after the horse is stolen. By plenty of sleep, fresh air, good food, and sunlight we are building the kind of bodies in which the tubercle bacilli cannot live and multiply.

For this knowledge we owe a tremendous debt to Koch, who discovered the bacillus, and to Trudeau and other scientists who, by proving the possibility of curing tuberculosis by rest, fresh air, and good food, pointed to the possibility of preventing it by the very same prescription.

As a humanitarian, Trudeau founded his Sanatorium very definitely with the view of giving help to those people of limited means who had a fair chance of getting well and returning to an active, useful life. Apparent curability and the inability

to pay ordinary boarding-house rates in Saranac Lake were, and still are, the two standards of admission to the Sanatorium. Throughout its existence its charge to each patient has been about one-half the cost of the care.

The Chapel at Trudeau Sanatorium

The Trudeau Sanatorium is the living symbol of Trudeau. After the founder's death, Dr. Walter B. James, one of Trudeau's closest friends and staunchest aides, became president of the Board of Trustees of the Sanatorium and under his leadership the institution has continued to grow. The Trudeau spirit is still alive there. It is a place of study, a place where nurses and physicians may learn the newest methods of dealing with what

Trudeau called "an ever-present and relentless foe." But above all, it is a lamp set in the wilderness, a glorious hope for self-supporting people of limited resources who have a fighting chance to win their battle against tuberculosis.

As a physician, Trudeau shone with the chief glory of medicine, its humanity. By reason of his abounding humanity he knew and understood and ministered to the wounds of the spirit as well as those of the body. He tried to cure the body if he could. If not, he trained his fallen gladiators to win a victory of the spirit. And this is the great hymn of spiritual courage with which he closes his *Autobiography:*

> But there are other experiences, which relate to those patients at whose bedsides I have stood, who have undergone long years of enforced physical and mental suffering, and often grinding poverty as well, while they fought a fight which was from the first doomed to be a losing one for them; and their experiences have shown me glimpses of the spiritual in man, and brought me a larger and more precious message than even the gratitude and affection of those who have recovered. From these I have learned that the conquest of Fate is not by struggling against it, but by acquiescence; that it is often through men that we come to know God; that spiritual courage is of a higher type than physical courage; and that it takes a higher type of courage to fight bravely a losing than a winning fight, especially if the struggle from the first is evidently a hopeless one, and is protracted for years.

THE STATUE, "GLORY OF THE VANQUISHED,"
THAT TRUDEAU LOVED

These patients represent the sort of victory Mercié tried to immortalize in his wonderful statue, "Gloria Victis," which he was inspired to create in 1871 after the French nation had been crushed by Germany. The statue represents a young gladiator who has just received his death blow while facing

his foe. As he falls, his broken sword still in his hand, the figure of Victory, with great outstretched wings, swoops down and carries him upward in her arms.

The victories the world acclaims and rewards are the victories of success and achievement and triumph over the material forces of the universe; but the victories of the spirit, the victories of the vanquished, it takes little heed of. And yet the record of the ages shows that such victories require the highest type of courage, have been as enduring as any material achievements, and still speak their great message to the higher life of man, with a clearness which neither time nor the acclaim of the successful conquerors in life can dim.

The Trudeau Memorial at Trudeau Sanatorium

Fifteen hundred former patients of the Trudeau Sanatorium have had made a statue of the beloved physician and have had it placed in the midst of the City of Hope which he founded. Trudeau sits

at rest in a reclining chair, his eyes looking out to the hills whence his help came in the days of his youth. Down below in the valley is the village, now grown into a city. All about him rises " the castle of his dreams " which will endure as long as his personality is remembered and translated into action.

APPENDIX

THE STORY OF TUBERCULOSIS

TO understand more fully what Trudeau did in combating tuberculosis, it is well to know what people used to think about the disease before the discovery of the bacillus which causes it.

Tuberculosis has been called a protean disease. In an ancient legend of the Greeks Proteus was an old prophet who was a favorite of Neptune, the god of the sea. Proteus had the power of changing himself into many forms. He could become a wild boar or a fierce tiger, a scaly dragon or a lion with a yellow mane. He could make a noise like the crackling of flames or the rushing of water. As tuberculosis appears under many forms in the human body, it is easy to see how it came to be called a protean disease. Physicians and scientists in the past often gave different names to various forms of tuberculosis and sometimes confused other diseases with it. In our day science has stripped tuberculosis of its various disguises, and we now know that it is always a struggle between a tiny living or-

ganism and the body of the animal or human being that it has entered.

Tuberculosis has been one of the great scourges of all civilized peoples for as far back as history has recorded human affairs. It has meant different things to different people in the various ages of history. In ancient time it was recognized partly by its symptoms and partly by the harm that it did in the human body. In an attempt to explain it, various causes were given by physicians who studied it. The weather, habits of life, the kind of food eaten, the state of mind of the person attacked, were all used as explanations of this dread disease. Laymen saw in it a "visitation of the sins of the parents upon the children, and of the sins of the individual upon himself." The disease was looked upon as an inheritance or as a result of an evil life or simply as a stroke of bad luck which might happen to any one.

The earliest record of the disease is found in a set of laws written in India thirteen centuries before the Christian era. We also have reason to believe, from ancient descriptions of symptoms which resemble those of tuberculosis as we know them today, that this disease existed in Mesopotamia in 2250 B. C., and that it was known to the ancient Egyptians, Hebrews, and Chinese.

It is not until we come to the Greeks, however, that we find a fuller picture of tuberculosis. In the books of Hippocrates (a great Greek physician who lived 460–370 B. C.) and those of his predecessors and followers, we can find a record of practically every form of tuberculosis. The Greek physicians saw and described everything about the disease except its true cause, the bacillus, but they did not interpret what they saw as we do with our present knowledge. They made the same mistake which all physicians made up to the discovery of the tubercle bacillus. They called the disease by different names according to the tissues which it invaded. To the disease in its last stage the Greeks gave the name *phthisis* (to waste away), after its most striking symptom, the wasting of the body. This name was also adopted by the Latin races. English-speaking people later gave it the name "consumption," from the Latin verb *consumere,* which has among its meanings the sense of being burned up, destroyed, and brought to an end.

Among the Greeks there were several theories to explain the outcropping of the disease. One of the most common was that a disturbance of the four elements of which the Greeks thought the body to be made up — earth, water, fire, and air — caused a distillation from the head to drop into the lungs

and set up there an ulceration which in the end destroyed the lungs. The theory that moisture from the head dropping into the lungs caused tuberculosis persisted until modern times.

Another theory of the Greeks attributed tuberculosis to an excess or a lack of food or to any extremes which enter into normal life. This led to the belief that violent emotions, extremes of temperature, and conditions of the weather, of the soil, and of water caused tuberculosis. Little is said in the Greek writings about heredity, but it was thought that the general appearance of a person sometimes disposed him to tuberculosis.

Apparently the Greeks did not regard tuberculosis as a contagious disease. To the Greeks an epidemic disease was not a "catching sickness," but rather a disease common to all places. The fact that most of what was definitely known about tuberculosis appears in the Hippocrates books on epidemics means that the Greeks thought of it as a universal disease rather than as a contagious one.

It cannot be doubted that the Greeks actually saw tubercles, the little lumps which form in the tissues of a tuberculosis patient. The Greeks called these little lumps *phymata* and the Romans translated this word into *tubercula.*

The Greeks described diseases which we now

recognize as tuberculosis under many different names. Sometimes they noted that these diseases ended in phthisis, but they did not connect the various stages of the disease by a relationship of cause and effect.

The treatment of tuberculosis by the Greek physicians was sensible and in some ways like that which we use today. They emphasized the use of baths, rest, easily digested food, and plenty of milk. In some cases they made milk the basis of the treatment. Occasionally they recommended a change of climate.

Tuberculosis was not common among the Romans in the first four or five centuries of the Roman Empire. It became more prevalent as time went on, but never became so great a scourge as among the Greeks. One of the earliest records of medical thought among the Romans is given us by Pliny the Elder, who wrote about the middle of the first century A. D. Pliny was a great gossip and believed everything he heard. He tells us that on the whole the Romans had good health and despised doctors; nevertheless, in his writing there is ample evidence of the existence of tuberculosis.

Another Latin writer on medicine, who lived about the same time as Pliny the Elder, was a Roman, Aurelius Cornelius Celsus. He mentions

tuberculosis in many places in his writings. He described various kinds of consumption. The first, wrote Celsus, was caused by the emaciation of the body. This condition resulted either when a patient was timid and ate too little or when he was voracious and ate too much for the body to digest. The second kind was caused by a bad constitution. The third, which lasted longest and was most dangerous, was what the Greeks called phthisis. According to Celsus, it usually rose in the head and then trickled into the lungs.

"When the disease is of the worst kind," says Celsus, "and is really phthisis, it is necessary to fight it continuously from the very beginning, for it is not easy to conquer this disease when it has entrenched itself." He recommended long sea voyages, complete rest from business cares, long hours of sleep, avoidance of colds and exposure, proper medication for the fever and cough, a carefully regulated diet with plenty of milk, and moderate exercise after the fall of the fever. Celsus knew nothing of tubercles from personal observation and did not understand the Greek writings which deal with this subject.

Two Greek physicians, Aretæus and Galen, tell us most of what we know about tuberculosis among the Romans. Both were able physicians, surgeons,

and writers. Galen's authority was supreme in the medical world from the third century to the seventeenth.

Aretæus (second to third century A.D.) described accurately the symptoms of many diseases of the lungs which undoubtedly were tuberculosis, but which he did not associate with it.

In treating diseases of the lungs, he used little medication, but carefully regulated the diet. He especially recommended milk. He said: "To take milk is pleasant; to drink it is easy; it contains solid nutrition and it is of all foods the one with which one is most familiar from childhood; it is even most pleasant to the sight on account of its whiteness." For those who had hemorrhage (bleeding) from the lungs he insisted on cold air to breathe and rest in a comfortable plain bed, and above all he urged the physician to keep the patient in an even, cheerful frame of mind.

Galen (131–201 A. D.) was a keen observer and a clear thinker. He was an architect's son and was born at Pergamus, which was then a colony of the Roman Empire. In 164 A.D. he settled in Rome, where he became the leader of the medical profession. But he retired early in order to devote his time to study, travel, and teaching. Although Galen was the most skilled practitioner of his time, he

was very cocksure in his attitude toward medicine and was fond of explaining diseases by ready-made theories. He substituted theory for the "plain notation and interpretation of facts as taught by Hippocrates." Garrison in his *History of Medicine* says that Galen's cocksure theories had an appalling effect on future ages.

Galen was the most voluminous writer on medicine in the Roman Empire. It is evident from his writings that he observed every form of tuberculosis that can occur, but he described these various forms under different names and had only a vague suspicion of the relationship between them. He thought that phthisis was caused either by a ruptured blood vessel or by the dropping of fluid from the head into the lungs. He knew something of tubercles, but did not understand their relationship to tuberculosis. He thought that digested food in the blood stream sometimes coagulated to form the little lumps called tubercles. Galen also gave some support to the contagion theory of tuberculosis. His treatment of the disease was sensible. He advised cold, dry air, especially that to be found in elevated places, and he recommended long sea voyages. He also prescribed a milk diet.

Between the third and the seventeenth centuries little progress was made in the development of a

knowledge of tuberculosis. The first person after Galen who contributed anything of note to the knowledge of the disease was Franciscus Sylvius (1614–72), a professor of medicine in the University of Leyden, Holland. Sylvius, in making autopsies, discovered tubercles in the lungs or in the lymph glands of those who had died of tuberculosis and associated these tubercles with the disease. He gave other reasons for the cause of tuberculosis, although these differed little from what had been thought before his time. He wrote that it was generally considered to be hereditary and he accepted the doctrine that it was contagious. He stated that the contagion was contained in the air breathed out by the consumptive.

In the beginning of the eighteenth century there was a halt in the advance of people's knowledge of tuberculosis. This was caused by the conflict in physicians' minds between the old teaching of Galen and the new ideas introduced by Sylvius.

The greatest advance made in the eighteenth century in methods of diagnosing tuberculosis was Leopold Auenbrugger's discovery of percussion of the chest. Auenbrugger, who was physician-in-chief of a hospital in Vienna, Austria, published his discovery in 1761. He called the pamphlet announcing his discovery " A New Discovery of Per-

cussion of the Human Chest for Detecting the Signs of Obscure Disease of the Chest Cavity." In a modest introduction to this pamphlet he said: "I present you, dear reader, a new method of discovering diseases of the chest invented by me. It consists of knocking at the human thorax. From the variation in reverberating sounds a judgment may be reached as to the condition of the contents of the chest cavity."

The method was to strike the chest gently with the tips of the fingers while the patient held his breath. By long practice Auenbrugger had found out the normal sounds made by striking a healthy chest; any variations in the pitch of these normal sounds indicated trouble. We can readily see how this discovery helped in diagnosing tuberculosis.

A study of the bodies of those who had died of tuberculosis gave the physicians of the eighteenth century a much fuller knowledge of the disease and of the tubercles which were usually found to be present. And yet this fuller knowledge led to confusion and to gloom. In the face of the facts, physicians did not know which way to turn. Brisk arguments over the contagion theory flew back and forth. Climates which had been looked upon as free from tuberculosis began to lose their reputation. Lists of occupations which were thought

favorable or unfavorable to the development of tuberculosis were drawn up and debated. Diet, exercise, temperature, clothing, warm and cool baths were discussed.

Everywhere physicians saw the disease on the increase. In exasperation one of them, Thomas Beddoes, wrote: "That so many important questions relating to so universal and so terrible a malady should remain unsettled to the present hour, and that in order to provoke the truth a writer should be under the necessity of hazarding conjectures, seems to demonstrate how little men attend to what most concerns them." Beddoes, in the midst of the pessimism about tuberculosis which was springing up, remained fairly optimistic. He wrote: "To believe in the impossibility of dispersing tubercles, and by consequence of curing consumption, is to pay too great deference to the opinion of men." From this remark we see that tubercles were definitely connected in men's minds with consumption. The name "tuberculosis" was first applied to the disease in 1839, by Dr. J. L. Schoenbein, a medical professor in Zurich.

In the early part of the nineteenth century another forward step in the method of diagnosing tuberculosis was made by René-Théophile-Hya-

cinthe Laënnec. Laënnec was the French physician who invented the stethoscope in 1819.

One day he had difficulty in hearing the heart sounds of a certain patient. He was reminded that if one applied the ear to the end of a beam one might hear the scratch of a pin at the other end. He took a sheet of paper out of which he made a tightly rolled tube. He applied one end to the heart region, and at the opening of the other he placed his ear. "Upon which," he says, "I was quite surprised to find how satisfactorily I could hear the heart beats — better, more clearly and more distinctly, than I had ever done by immediate application of the ear." That roll of paper was the first stethoscope.

By using the stethoscope Laënnec was able to hear sounds in the region of the chest that no one had heard before. He wrote a book which is the foundation of our modern knowledge of diseases of the chest and their diagnosis by sound. It has been called the most important treatise on diseases of the organs of the chest that was ever written.

In the forty years following Laënnec's death in 1826, little was added to the knowledge of tuberculosis. It came generally to be regarded as a hopeless disease. Progress was made in the diagnosis and in the classification of various forms of tuber-

culosis, but the treatment for it was clouded with pessimism.

In the year 1827, another Frenchman was born who achieved undying fame by his proof that tuberculosis is a specific infection due to an invisible agent. This Frenchman was Jean-Antoine Villemin (1827–92). Villemin made his studies of tuberculosis in the sixties of the nineteenth century. He was familiar with the work of Louis Pasteur who at that time was asking himself the question: Is it possible that tiny living organisms are responsible for sicknesses that are catching in animals and human beings? No one before had even so much as dreamed that catching sicknesses and infections are caused by germs.

Villemin made a most careful study of tuberculosis. He came to the conclusion that heredity as a cause of the disease had no foundation in fact. He came to this decision in spite of the fact that most physicians then believed in heredity as a factor in tuberculosis.

He said in effect to medical men: Children who are said to have hereditary tuberculosis are seldom or never tubercular when they come into the world. They become tubercular at five years, at fifteen years, at thirty years, at forty years, at sixty years, and even above that. If they have inherited the dis-

ease in its cause, in what corner of the organism has this cause been confined? Has it lodged silently for twenty, thirty, forty years and wakened from its sleep quite suddenly with an explosion? No. The essential cause of tuberculosis cannot be handed down from parent to child. But it is possible that an aptitude for tuberculosis may be inherited. What, then, is the essential cause of tuberculosis?

To answer this question he examines the character of tuberculosis. It is a disease of all climates; it is rare or nonexistent in high altitudes; it increases with crowding and concentration of the population; it spares people who are isolated, scattered, or living largely in the open air; it was unknown among certain peoples before their contact with Europeans. But when tuberculosis was introduced among the natives of a new country, such as the Indians of America, it became a violent destructive scourge. In effect, when one examines it, one cannot fail to recognize it as very like those diseases which are known to be contagious.

For these reasons, as well as for others, Villemin believed that its cause was a specific agent which multiplies and transmits itself from one person to another.

The next step was to prove the infective nature

of tuberculosis. Villemin did this by inoculating animals with tuberculous material taken from human beings and other animals. He made a long series of carefully controlled experiments which he summed up as giving the following results: It is possible to inoculate tuberculosis from man to certain kinds of animals, and from animals to other animals of the same species and of different species. It is inoculable not only with the product of the tubercle, but also with the bronchial secretions and the blood.

From these experiments he felt that he was justified in claiming that tuberculosis is caused by a specific invisible agent. He wrote: "This disease . . . is not a spontaneous creation of the body. It is not debility, nor fatigue, nor misery, nor cold, nor heat, etc., which can make it spring up in the organism. For its birth a germ is necessary which can only come in from without, and its inoculability demonstrates that this germ multiplies itself and perpetuates itself in the bodies of men and certain animals."

To prevent the disease he recommended the improvement of the homes and working conditions of the people, the maintenance of a high standard of health to resist the germ, and the disinfection of things and places known to have been touched by

consumptives. He saw far off in the distance that rosy hope which Trudeau himself was to see seventeen years later when he heard of the actual discovery of the germ which Villemin had shown must exist. This hope was the possibility of giving an artificial immunity against the tuberculosis virus as people are given artificial immunity against the smallpox virus by vaccination. He said: "These are the hopes which our discovery alluringly has held out to us. May they bring the fruit to which we look forward in the future with pleasure."

In the year 1865 when Villemin was so brilliantly proving the existence of something which he could not see, the two brothers, Edward and Frank Trudeau, fought tuberculosis shut up in a stuffy sick-room. They had probably never heard of Villemin, nor did they know that he could have given them the knowledge which would have helped Edward to avoid catching the disease from his brother.

Villemin's work was not received with enthusiasm. Very few appreciated its true value and it was not generally accepted. It was Robert Koch who was to prove beyond doubt the infectious nature of tuberculosis and to discover the bacillus which causes it. In Chapter VI you are told of

Koch's discovery and of what effect it had on the medical world.

It is at this point in the history of the fight against tuberculosis that Trudeau made his contribution to the conquest of the disease, as is described in this book.

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